

# EXHIBIT C

## IN THE UNITED STATES COURT OF FEDERAL CLAIMS

LIGADO NETWORKS LLC,

Plaintiff,

v.

UNITED STATES OF AMERICA;  
DEPARTMENT OF DEFENSE;  
DEPARTMENT OF COMMERCE; and  
NATIONAL TELECOMMUNICATIONS  
AND INFORMATION  
ADMINISTRATION,

Defendants.

Case No. 23-1797 L**COMPLAINT**

1. This case concerns the largest uncompensated taking of private property by our nation's government in modern times. Officials and agencies at the highest levels of our government have engaged in an unlawful scheme to take tens of billions of dollars of property, in the form of spectrum rights, belonging to plaintiff Ligado Networks LLC ("Ligado" or the "Company") without any compensation and then to destroy Ligado's reputation, threaten its business partners, and prevent Ligado from using its spectrum.<sup>1</sup> The Department of Defense ("DOD"), the Department of Commerce ("DOC"),<sup>2</sup> and Congress have unlawfully prevented Ligado from using the electromagnetic spectrum that the Federal Communications Commission ("FCC") exclusively licensed to Ligado for terrestrial services. Indeed, DOD has gone further: it

<sup>1</sup> This Complaint refers to Ligado Networks LLC and its predecessors-in-interest collectively as "Ligado." Ligado's predecessors-in-interest include LightSquared Subsidiary LLC, SkyTerra Communications, Inc., Mobile Satellite Ventures, Motient Services, Inc., and American Mobile Satellite Company.

<sup>2</sup> Unless stated otherwise, references to DOC include the National Telecommunications and Information Administration ("NTIA"), an agency within DOC.

has taken Ligado's spectrum for the agency's *own* purposes, operating previously undisclosed systems that use or depend on Ligado's spectrum without compensating Ligado.

2. To facilitate its multi-billion-dollar taking and cover up its previously undisclosed use of Ligado's spectrum, DOD (with DOC's assistance) made false or misleading claims to the FCC, Congress, the White House, other federal agencies, and the public about the effects of Ligado's proposed 5G terrestrial services on Global Position Systems ("GPS"). DOD officials even told multiple individuals at the FCC that they wanted to "kill the company," referring to Ligado. The full extent of DOD and DOC's malfeasance may not have come to light were it not for private communications between Ligado and current and former government employees as well as disclosures by a whistleblower and senior official within DOD (the "DOD Whistleblower"), who revealed internal emails and discussions with high-ranking officials showing that the concerns were unfounded. Ligado's conversations and the Whistleblower's disclosures lay bare how DOD and DOC fabricated arguments, misled Congress in testimony supporting anti-Ligado legislation, and orchestrated a public smear campaign, which included repeating those false claims to the public and threatening Ligado's business partners with canceling their own government contracts if they worked with Ligado. DOD and DOC took those remarkable steps to destroy an American company, not out of concerns about Ligado's use of its own spectrum rights, but so that DOD could continue to use Ligado's spectrum for its own purposes without paying. Ligado seeks compensation for the U.S. Government's physical, categorical, regulatory, and legislative takings—which are ongoing and, as of the date of this filing, have deprived the Company of tens of billions of dollars.

3. For years, the U.S. Government has favored the development of 5G technology that will seamlessly connect electronic devices in rural areas and provide ultra-fast, ultra-reliable

networks to support critical infrastructure industries like public safety, energy, and transportation. To fulfill these and other key policy goals, the U.S. Government encouraged companies to pursue modified terrestrial authority (referred to as Ancillary Terrestrial Component or “ATC” authority) for its license and to invest to develop its proposed 5G services. Ligado did just that. Over the course of nearly two decades, Ligado worked with key stakeholders in the U.S. Government and the private sector through a prolonged FCC process to ensure that Ligado’s services would be able to coexist with all other known services operating in nearby spectrum. At its own cost, Ligado developed solutions to ensure that its services would not harmfully interfere with signals in adjacent spectrum bands—including spectrum allocated to GPS service—and made significant concessions to overcome these technical issues. Ligado’s efforts were so successful that major manufacturers of GPS receivers, the National Telecommunications and Information Administration (“NTIA”), and DOD (until 2018) supported Ligado’s proposed terrestrial services on the basis that they would not harmfully interfere with GPS receivers.

4. On April 22, 2020—after many years of exhaustive fact-finding, regulatory process, scientific study, and analysis—the FCC, in a unanimous, final decision, granted Ligado’s request to modify its mobile satellite services license and ATC authority—to allow Ligado to provide wireless terrestrial 5G services in its spectrum (the “April 2020 FCC Order” or the “Order”). In reasonable, good-faith reliance on the April 2020 FCC Order, Ligado raised approximately \$4 billion in additional capital and converted \$6 billion of debt to equity to build out its spectrum in order to further deploy the 5G technologies the FCC determined were in the public interest when it granted Ligado’s license modification applications (the “Applications”).

5. However, unbeknownst to Ligado, DOD had already taken (and continues to take) Ligado’s exclusively licensed spectrum by operating previously undisclosed systems that use—

and indeed, depend on—that spectrum. According to government officials, these previously undisclosed systems depend on the entirety of Ligado’s spectrum authorized for wireless terrestrial 5G services, and are needed by DOD on a permanent basis. In August of 2022, more than a decade after Ligado began investing to develop its terrestrial 5G network and two years after the FCC approved Ligado’s Applications, Senator Roger Wicker and Senator Mark Warner acknowledged the existence of those undisclosed systems in a letter to Secretary of Commerce Gina Raimondo, Secretary of Defense Lloyd Austin, and Assistant Secretary of Commerce and NTIA Administrator Alan Davidson.

6. Rather than compensating Ligado for DOD’s appropriation of the Company’s licensed spectrum, DOD, acting in concert with DOC, improperly took steps to stymie implementation of the April 2020 FCC Order and to prevent Ligado from using the Company’s spectrum for terrestrial services, from realizing the value of the Company’s FCC license and newly modified ATC authority, from securing a return on the Company’s immense investments, and from discovering DOD’s use of Ligado’s property.

7. DOD and DOC also sought to destroy Ligado’s reputation by masterminding a highly orchestrated public disinformation campaign based on purported risks to GPS from Ligado’s services, in an effort to effectuate this uncompensated taking from Ligado. Specifically, numerous military and civilian officials at the highest levels of DOD and DOC, acting on the agencies’ behalf, provided misleading information and/or withheld material information from the National Security Council, the White House, Congress, the Office of Management and Budget, the FCC, colleagues at DOD and DOC, and the general public. These officials participated in numerous meetings and briefings, signed legal filings, and provided testimony to Congress in which they represented that they opposed the April 2020 FCC Order because Ligado’s use of its

authorized spectrum would cause harmful interference to DOD's and others' GPS receivers. DOD built a website that made sensational and libelous claims about the risks to GPS from Ligado's services. Senior government officials did this even though assertions about harmful GPS had been rejected by the FCC based on extensive engineering studies, and were intended as a smokescreen to cover up for DOD's unjust taking and use of Ligado's authorized spectrum without compensation. DOD's purported GPS concerns were a pretext.

8. Testing at a lab sponsored by DOD and DOC demonstrated that Ligado's terrestrial services would not harmfully interfere with GPS receivers—an incontrovertible conclusion memorialized in a leaked internal agency presentation and documents authored by senior DOD and DOC officials. Quoting those leaked internal DOD documents, the then-FCC Chairman tweeted the following about DOD's baseless attacks against Ligado and the unanimous April 2020 FCC Order:



Ajit Pai  
@AjitPai

...

What do the Department of Defense's technical experts \*really\* think about the @FCC's unanimous, bipartisan [#Ligado](#) decision? Here is what a high-ranking expert working for the DoD's Chief Information Office had to say privately after we made that decision.

*The unanimous, bipartisan vote by the FCC is keenly obvious proof to any who are truly informed or were honest assessors of the engineering and regulatory soundness of this final determination, albeit so very long in arriving.*

12:44 PM · Jun 18, 2020

Additional internal DOD emails make clear that DOD's true aim was to protect its ongoing uncompensated use and occupation of Ligado's spectrum for DOD's own purposes, not to protect against harmful GPS interference.

9. DOD and DOC have forced Ligado's airwaves to remain silent—rendering Ligado's valuable spectrum a dead zone within which its terrestrial commercial services cannot occur—both through physical occupation and by preventing Ligado from using its FCC license to provide terrestrial services in its spectrum. Representatives of DOD also gave false or misleading testimony to Congress that caused Congress to pass legislation granting DOD a veto over Ligado's use of the spectrum, essentially preventing Ligado from utilizing its own spectrum and depriving Ligado of the value of its ATC authority as part of its FCC license. DOD and DOC continued their taking of Ligado's exclusive property without paying just compensation to Ligado, threatening to destroy Ligado in the process.

10. Through these efforts, DOD and DOC have succeeded in taking without just compensation the extremely valuable and exclusive right conferred by Ligado's FCC license to deploy terrestrial communications services that Ligado sought for two decades and invested billions of dollars to obtain. In so doing, DOD and DOC have caused immense harm to Ligado by destroying its reasonable investment-backed expectations, and they have also frustrated the U.S. Government's longstanding policy goals with respect to critical infrastructure, including the development of vital 5G services.

11. In addition, the United States, by enacting the National Defense Authorization Act (“NDAA”) for Fiscal Year 2021,<sup>3</sup> has effected a legislative taking of Ligado's property rights. The

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<sup>3</sup> All references to the NDAA are to the 2021 NDAA unless stated otherwise.

NDAA targeted Ligado with precision, destroying the value of Ligado's exclusively licensed spectrum, and rendering worthless Ligado's 5G ATC authority.

12. These takings are ongoing and, on information and belief, will continue indefinitely. Just compensation is warranted.

### **PARTIES**

13. Plaintiff Ligado Networks LLC is a Delaware limited liability company, with its principal place of business in Reston, Virginia. Ligado has an exclusive nationwide FCC license and ATC authority to provide 5G terrestrial communications services using the 1526 to 1536 megahertz ("MHz"), the 1627.5 to 1637.5 MHz, and the 1646.5 to 1656.5 MHz bands of spectrum.

14. The United States of America is named as a defendant pursuant to 28 U.S.C. § 1491.

15. The Department of Defense is an Executive Branch department of the U.S. Government and is headquartered in Arlington, Virginia. General Lloyd J. Austin III is the U.S. Secretary of Defense.

16. The Department of Commerce is an Executive Branch department of the U.S. Government and is headquartered in Washington, D.C. Gina M. Raimondo is the U.S. Secretary of Commerce.

17. The National Telecommunications and Information Administration is an agency within the Department of Commerce that advises the President on telecommunications and information policy issues. Alan Davidson is the NTIA Administrator, as well as the U.S. Assistant Secretary of Commerce for Communications and Information.

## **JURISDICTION**

18. This Court has subject matter jurisdiction pursuant to 28 U.S.C. § 1491(a) because the matter in controversy relates to claims against the United States founded upon the Constitution, specifically the Takings Clause of the Fifth Amendment.

## **FACTUAL ALLEGATIONS**

### **I. The FCC Allocates and Exclusively Licenses All Electromagnetic Spectrum That Support Wireless Communications in the United States.**

19. Wireless communication works by transmitting and receiving electromagnetic waves. The different types of electromagnetic waves are defined according to their frequencies—that is, how many times per second the wave oscillates—and are categorized along an electromagnetic spectrum.

20. For example, the electromagnetic waves picked up by an FM radio oscillate at a frequency of 88 to 108 million times per second, or 88 to 108 MHz. The radio station WTOP, for instance, broadcasts at 103.5 MHz in the Washington, D.C. metropolitan area.

21. A given range of spectrum is known as a “band,” and its capacity is finite. The operation of too many transmitters within a band can interfere with and degrade the ability of receivers to collect the information they need. In a recent statement, FCC Commissioner Nathan Simington compared spectrum to real estate: “[T]he era of abundant spectrum is coming to a close. Like real estate, they just aren’t making any more of it. . . . We should think of [radio frequency] spectrum as fully occupied land whose usage must inevitably intensify.”<sup>4</sup>

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<sup>4</sup> *In the Matter of Promoting Efficient Use of Spectrum through Improved Receiver Interference Immunity Performance*, ET Docket No. 22-137 (April 21, 2022) (Statement of FCC Commissioner Simington), <https://docs.fcc.gov/public/attachments/FCC-22-29A5.pdf>.

22. To prevent this congestion and allocate spectrum to different users within the United States, Congress passed the Communications Act of 1934, codified as amended at 47 U.S.C. § 151 *et seq.* The Communications Act exclusively empowers the FCC to allocate certain bands of frequencies to either public or private sector uses, issue licenses to use spectrum bands to commercial users through auction or other means, and regulate the activities of those commercial and governmental users.<sup>5</sup> NTIA assigns the spectrum designated by the FCC for federal government use to specific federal spectrum users, such as DOD.<sup>6</sup> The FCC and NTIA coordinate with each other and with other federal stakeholders through the Interdepartmental Radio Advisory Committee (“IRAC”). However, the FCC is the only federal agency with the power to grant, modify, or revoke an allocation of spectrum to the federal government or a license of commercial spectrum.

23. No commercial entity may operate a transmission device in the United States without a license granted by the FCC.<sup>7</sup> Where a commercial entity is the only one to have been issued a license to use a particular band, as is the case with Ligado’s license, it enjoys the exclusive right to use that allocated spectrum.

24. Similarly, federal agencies are permitted to use only the frequencies allocated by the FCC for use by the federal government and assigned to specific federal spectrum users by NTIA.<sup>8</sup>

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<sup>5</sup> See 47 U.S.C. §§ 303(b) and (c).

<sup>6</sup> See 47 U.S.C. §§ 305(a); 902(b)(2)(A).

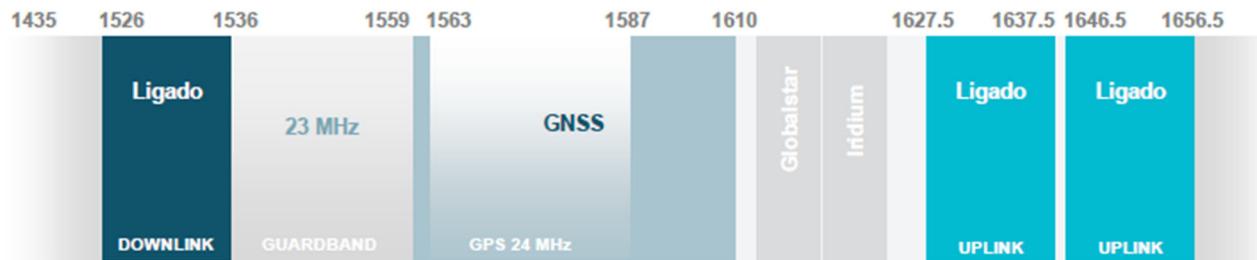
<sup>7</sup> See 47 U.S.C. § 301.

<sup>8</sup> See 47 U.S.C. §§ 305(a); 902(b)(2)(A).

**II. For years, the FCC Encouraged Companies like Ligado to Invest in the Deployment of 5G Services Within the L-Band Portion of the Spectrum.**

25. Ligado's spectrum is part of the spectrum known as the "L-Band," specifically, the range of frequencies from 1525 to 1660.5 MHz. The L-Band is divided into roughly three sub-bands: 1525 to 1559 MHz for use in transmitting data from towers and satellites to receivers or devices; 1559 to 1610 MHz for use by GPS; and 1610 to 1660.5 MHz for use in transmitting data from receivers and devices to towers and satellites.<sup>9</sup> The below chart illustrates where Ligado's spectrum is located in relation to GPS and other services authorized by the FCC to operate within the L-Band:

**Figure 1**



26. Historically, the FCC and NTIA designated the L-Band for use with mobile satellite services ("MSS")—*i.e.*, communications between satellites and mobile receivers on the ground. In 1989, for example, the FCC allocated to Ligado parts of the L-Band that are in the same spectrum neighborhood as the spectrum allocated for use by GPS, and authorized Ligado to use that licensed spectrum for MSS operations.

27. But the exponential growth in data consumption triggered by the advent of wireless devices like smart phones, tablet computers, and other emerging technologies posed a looming crisis to the 5G industry. The FCC has recognized that "[i]f the U.S. does not address this situation

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<sup>9</sup> See 47 C.F.R. § 2.106.

promptly, scarcity of mobile broadband could mean higher prices, poor service quality, an inability for the U.S. to compete internationally, depressed demand and, ultimately, a drag on innovation.”<sup>10</sup> Indeed, millions of Americans, particularly in rural areas, continue to go without access to broadband and thus are at a profound competitive disadvantage.

28. Accordingly, the U.S. Government has for years sought to expand the capacity and coverage of the nation’s mobile broadband spectrum. Its most recent efforts have focused on building out 5G networks, with the previous Chairman of the FCC, Ajit Pai, noting that “it has transformative potential, including much faster speeds, much lower latency, much more capacity, and new services and applications, many of which nobody can even predict today.”<sup>11</sup> In particular, the FCC has recognized the immense value of mid-band spectrum—like Ligado’s L-Band spectrum—for 5G. FCC Chairwoman Jessica Rosenworcel commented that mid-band spectrum “offers an ideal blend of capacity and coverage.” She then described the urgent need for wide usage of the spectrum:

[Mid-band] spectrum is key to delivering on the promise of 5G services and ensuring that it reaches as many people as possible. The bottom line is we need mid-band deployment at scale to foster invention in the new 5G spectrum frontier. . . . Our ability to be successful in this mid-band mission is as much about finding partners as it is about finding spectrum.<sup>12</sup>

29. Terrestrial use of the L-Band for 5G, coupled with existing satellite coverage, will improve how networks serve the industrial “Internet of Things.” For example, terrestrial use of

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<sup>10</sup> Federal Communications Commission, *Connecting America: The National Broadband Plan* at 77 (2010), <https://files.eric.ed.gov/fulltext/ED508905.pdf> (hereinafter “National Broadband Plan”).

<sup>11</sup> Ajit Pai, *The Next Big Thing*, Federal Communications Commission (Mar. 21, 2019), <https://www.fcc.gov/news-events/blog/2019/03/21/next-big-thing>.

<sup>12</sup> Jessica Rosenworcel, Chairwoman, Federal Communications Commission, Remarks at Mobile World Congress New Frontier of Partnerships Keynote (March 1, 2022), <https://docs.fcc.gov/public/attachments/DOC-380838A1.pdf>.

the L-Band will improve the capabilities of public safety and other critical infrastructure industries, including rail transport, renewable energy, trucking, public utilities, oil and gas, aviation, and autonomous vehicles. Unsurprisingly, the U.S. Government has long supported the development and expansion of mobile broadband access as a key goal of national infrastructure policy. The FCC has recognized that “[l]ike electricity a century ago, broadband is a foundation for economic growth, job creation, global competitiveness and a better way of life.”<sup>13</sup>

30. One tactic for facilitating the deployment of 5G networks is the removal of regulatory barriers to permit fuller utilization of the L-Band, which, as noted above, was traditionally used exclusively for MSS—that is, direct communications between satellites and mobile receivers. Because the L-Band historically was licensed only for MSS uses, it had potential for terrestrial use and therefore had untapped potential to carry enormous amounts of additional data and provide communications services to many more people in the United States.<sup>14</sup>

31. Between 2003 and 2010, the FCC invited operators of MSS networks, like Ligado, to seek authority to provide complementary terrestrial ATC services.<sup>15</sup> The ATC authority conferred through an FCC license is a valuable property right that grants the licensee additional

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<sup>13</sup> National Broadband Plan at p. xi.

<sup>14</sup> See Press Release, Federal Communications Commission, Chairman Pai Circulates Draft Order to Approve Ligado’s Application to Facilitate 5G and Internet of Things Services (Apr. 16, 2020), <https://www.fcc.gov/document/chairman-pai-circulates-draft-order-approve-ligados-application> (“The draft order that I have presented to my colleagues would make more efficient use of underused spectrum and promote the deployment of 5G and Internet of Things services.”).

<sup>15</sup> See *In the Matter of LightSquared Technical Working Group Report and LightSquared License Modification Application*, 35 FCC Rcd. 3772, ¶ 3 (2020) (hereinafter “April 2020 FCC Order”) (citing *Flexibility for Delivery of Commc’ns by Mobile Satellite Serv. Providers in the 2 GHz Band, the L Band, and the 1.6/2.4 GHz Bands*, 18 FCC Rcd. 1962 (2003)).

rights to use its licensed spectrum for terrestrial services—in addition to satellite services—thereby expanding the economic potential and exclusivity attendant to such property.

32. As a result of the FCC’s decision to make ATC authority available, in 2003, Ligado applied to the FCC to modify its existing MSS license to provide terrestrial ATC services. As Ligado’s efforts to provide ATC services ramped up since 2003, the FCC repeatedly approved Ligado’s plans and prompted Ligado to continue expending substantial time and resources in support of the nation’s mobile broadband ambitions. Indeed, in March 2010, the FCC acknowledged that Ligado’s efforts “are a significant public interest benefit, both because of the competition it will bring in mobile wireless broadband services and because it will provide mobile wireless broadband service to traditionally underserved areas.”<sup>16</sup> And in 2012, the FCC welcomed Ligado’s plans as “a unique proposal that had the prospect of attracting new private investment, increased competition, additional broadband service to rural and hard-to-reach regions, and creating thousands of jobs.”<sup>17</sup>

33. DOD likewise has recognized the immense value that 5G services will provide. For example, in an internal June 5, 2017 email, the Whistleblower, a senior engineer in the Office of DOD Chief Information stated that “[t]he current Ligado proposal, and perhaps other Mobile Satellite Services (“MSS”) providers that may follow, are promising our national decision-makers new life-saving services in public safety of aviation, railways, vehicles and emergency response

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<sup>16</sup> *In the Matter of SkyTerra Communications, Inc.*, 25 FCC Rcd. 3059, ¶ 70 (2010) (Application for Consent to Transfer of Control of SkyTerra Subsidiary, LLC).

<sup>17</sup> The LightSquared Network: An Investigation of the FCC’s Role, Hearing Before the Subcomm. on Oversight & Investigations of the House Energy & Commerce Comm. 112 Cong. 2 (2012) (joint statement of Julius P. Knapp, Chief, Office of Engineering and Technology, Federal Communications Commission, and Mindel De La Torre, Chief, International Bureau, Federal Communications Commission), <https://www.gps.gov/congress/hearings/2012-09-commerce/knapp-mindel.pdf>.

communications, as well as new business uses.” Secretary of Defense Lloyd Austin recently stated that DOD “is committed to making the United States a world leader in 5G by working with the commercial sector and fielding 5G to the warfighter.”<sup>18</sup>

### **III. The GPS Industry and U.S. Government Confirmed Ligado’s Terrestrial Services Will Not Cause Harmful Interference to GPS Receivers.**

34. Long before the FCC issued its April 2020 Order granting Ligado’s Applications to provide terrestrial services in its exclusive spectrum, the FCC thoroughly studied, examined, and ultimately rejected claims that terrestrial services in Ligado’s spectrum would cause harmful interference to GPS.

35. Since the FCC first opened up the L-Band to terrestrial network development, Ligado has worked extensively with the GPS industry and other interested stakeholders to eliminate any potential for its terrestrial L-Band services to cause harmful interference with GPS receivers operating in the adjacent spectrum at 1559 to 1610 MHz, which is the spectrum band assigned by the FCC to GPS and GPS receivers operating outside of their assigned band. In a September 2012 application with the FCC, Ligado proposed to modify its existing license to obtain the authorizations needed to enable the development of nationwide terrestrial services to complement its existing satellite infrastructure (the “September 2012 Application”). To ensure that Ligado’s terrestrial services would not cause harmful interference to GPS receivers, including receivers operating outside GPS assigned spectrum, Ligado proposed, as part of the September 2012 Application, not to use its 1545 to 1555 MHz band of spectrum (the band closest to the frequencies used by GPS receivers) for ATC services, forgoing billions of dollars of commercial

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<sup>18</sup> *Fiscal Year 2023 Defense Budget Request, Hearing Before the House Armed Servs. Comm.* 117th Cong. (2022) (Secretary of Defense Lloyd J. Austin III Prepared Remarks Before the House Armed Services Committee), <https://docs.house.gov/meetings/AS/AS00/20220405/114628/HHRG-117-AS00-Wstate-AustinL-20220405>.

opportunities in the process. Ligado also proposed to reduce operating power levels throughout its licensed spectrum, including in the 1526 to 1536 MHz, 1627.5 to 1637.5 MHz, and 1646.5 to 1656.5 MHz bands.

36. Significant portions of Ligado’s September 2012 Application, and the significant concessions made therein to prevent potential harmful interference with GPS receivers, enjoyed the support of a number of government agencies—including DOD and DOC. In July 2013, officials from DOD, Air Force, Navy, Army, NASA, and DOC co-signed an internal memorandum to IRAC specifically stating that Ligado’s application to the FCC to use the 1627.5 to 1637.5 MHz and 1646.5 to 1656.5 MHz bands for commercial terrestrial operations “is mature enough for IRAC consideration and *ultimate recommendation.*”<sup>19</sup> Likewise, in an October 2013 email, a Principal Deputy within the office of the DOD Chief Information Officer (CIO) confirmed that DOD and DOC had “no issue” with the FCC “approving the [Ligado] proposal” with respect to those specific bands and co-signed the aforementioned memorandum in order to ask “IRAC to tell the FCC we approve.”<sup>20</sup>

37. In December 2015, after lengthy discussions with major GPS device manufacturers, Ligado filed a new proposal with the FCC to “address the core concerns raised by the GPS industry and secure those benefits for all GPS parties” (the “December 2015 Applications”).<sup>21</sup> The December 2015 Applications included the concessions set forth in the 2012 Applications and also proposed additional substantial concessions. Ligado confirmed once more that it would relinquish

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<sup>19</sup> Letter from Gerard J. Waldron, Counsel, Ligado Networks LLC, to Marlene H. Dortch, Secretary of the Federal Communications Commission, Attachment 1 (Aug. 3, 2021), (emphasis added).

<sup>20</sup> *Id.* at Attachment 2.

<sup>21</sup> See Letter from Gerard J. Waldron, Counsel, Ligado Networks LLC, to Marlene H. Dortch, Secretary of the Federal Communications Commission, 1 (Dec. 31, 2015).

terrestrial services in the 1545 to 1555 MHz band, and it also proposed highly restrictive operational parameters—including dramatic reductions of permissible power levels and out-of-band emissions—to address any remaining potential for its operations to cause harmful interference to GPS even when they were operating in Ligado’s designated spectrum.

38. The December 2015 Applications stemmed from discussions with major GPS receiver manufacturers and enjoyed their support. Ligado entered into coexistence agreements with every major GPS receiver manufacturer, and key industry members registered their support for Ligado’s Applications in filings with the FCC. For example, on June 27, 2016, GPS receiver manufacturer NovAtel filed with the FCC a letter stating that “NovAtel supports the Commission granting of [Ligado’s] modification applications.”<sup>22</sup> All of the other major GPS receiver manufacturers also issued similar comments to the FCC.<sup>23</sup>

39. DOD and DOC likewise recognized that in light of Ligado’s significant concessions, there was no threat of widespread harmful interference to GPS receivers from the terrestrial services Ligado was seeking in its December 2015 Applications. For example, on February 15, 2017, the National Advanced Spectrum and Communications Test Network (“NASCTN”), which is a joint initiative of DOD and DOC, released test results from its own study

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<sup>22</sup> Joint Letter from Doug Smith, Ligado and Michael Ritter, NovAtel Inc., to Marlene H. Dortch, Secretary of the Federal Communications Commission (June 27, 2016),

<sup>23</sup> See, e.g., *In the Matter of LightSquared Request to Modify its ATC Authority and LightSquared Technical Working Group Report*, IB Docket Nos. 12-340 and 11-109, at 1 (June 21, 2016) (Reply Comments of Deere & Company); Letter from Ken Mooyman, President, Lecia Geosystems Inc., to Marlene H. Dortch, Secretary of the Federal Communications Commission (June 24, 2016); see also Patrick Fitzgerald, *New LightSquared Settles GPS Lawsuit With Garmin*, Wall St. J. (Dec. 17, 2015), <https://www.wsj.com/articles/new-lightsquared-settles-gps-lawsuit-with-garmin-1450363420>.

that showed that Ligado's services would *not* cause widespread harmful interference to GPS.<sup>24</sup>

Following the NASCTN testing, NTIA gave a presentation to DOD in August 2017, citing the NASCTN test results and concluding that "Ligado's proposed out-of-band emission levels would protect GPS operations within the [radionavigation] band allocation."

40. Until approximately March 2018, DOD and DOC acknowledged that with the protections and concessions offered by Ligado, there was no scientific basis for any concerns that the terrestrial services proposed in Ligado's FCC license modification Applications would cause harmful interference to GPS receivers or other services offered by MSS operators in adjacent spectrum. An internal U.S. Air Force email from March 15, 2018, stated that the DOD CIO supported Ligado's modification Applications and intended to "support an NTIA/FCC proposal to allow Ligado Networks . . . to [begin] initial deployment" of Ligado's terrestrial services at specified power levels.

#### **IV. DOD Has Been Using Ligado's Exclusively Licensed Spectrum Without Paying Just Compensation to Ligado.**

41. As explained by the DOD Whistleblower (a career DOD engineer tasked with evaluating Ligado's FCC application), DOD faced a highly embarrassing situation in 2018: Its own experts concluded that there was no basis to challenge Ligado's FCC application. Nevertheless, high ranking government officials needed a pretext to stop Ligado from utilizing its spectrum for terrestrial services. For years, DOD did not disclose to the FCC, NTIA, and others their true motivations for opposing use of Ligado's spectrum. As DOD and NTIA disclosed to the FCC only *after* the FCC granted Ligado's Applications for modified ATC authority, on

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<sup>24</sup> See *NASCTN Releases Report on LTE Impact on GPS Receivers*, National Institute of Standards and Technology (Feb. 15, 2017), <https://www.nist.gov/news-events/news/2017/02/nasctn-releases-report-lte-impact-gps-receivers>.

information and belief DOD was using and continues to use Ligado's exclusively licensed spectrum for its own purposes.

42. While many of the details regarding DOD's use of Ligado's authorized spectrum have not been publicly disclosed and are not relevant to this claim, as discussed in more detail in Section XII, *infra*, multiple senior government officials have confirmed to Ligado that DOD needs *all* of Ligado's spectrum authorized for wireless terrestrial 5G services. These officials also told Ligado that DOD needs this spectrum both exclusively and permanently.

43. Senior government officials have also confirmed DOD's use of Ligado's authorized spectrum publicly as well. Now retired Air Force Space Command General John Raymond testified in a Senate hearing concerning Ligado's spectrum that "We have to be able to operate *in that spectrum*... [A]nd it is absolutely critical to our joint force."<sup>25</sup> He admitted that his concerns were "*not just GPS*. It is commercial communications satellites and other types of satellites that bring signals down."<sup>26</sup> In response to questioning about whether DOD was opposed to Ligado using its ATC authority because it was seeking to "protect" just GPS or whether it was seeking to keep Ligado out of the entire L-Band for other reasons, Under Secretary of Defense Griffin admitted, "[i]t is both."<sup>27</sup>

44. Further confirming DOD's use of Ligado's spectrum, on August 23, 2022, United States Senators Roger Wicker and Mark Warner sent a letter to Secretary Gina Raimondo, Secretary Lloyd Austin, and NTIA Administrator Alan Davidson. In the letter, the Senators wrote that they have recently learned that DOD has concerns relating to Ligado's terrestrial deployment

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<sup>25</sup> Senate Armed Services Committee Hearing Tr. at 54 (emphasis added).

<sup>26</sup> *Id.*

<sup>27</sup> *Id.* at 73–74.

that stem from the potential for interference with federal systems that were *not* disclosed to the FCC. The Senators, concerned that DOD and NTIA did not disclose this information in the years-long process that preceded the final April 2020 FCC Order, asked who at DOD and NTIA knew about these systems and when. The letters confirmed publicly what government officials had told Ligado privately: DOD has undisclosed operations that require the use of Ligado's spectrum.

45. A September 9, 2022 report issued by the National Academies of Sciences, Engineering and Medicine (the “National Academies”) acknowledged that “DoD uses the MSS band for many different applications” like “communications, navigation, tracking of military assets such as equipment and vehicles.”<sup>28</sup> But the National Academies’ report further conveyed—based on DOD’s statements, which the National Academies report admitted were not publicly available—that Ligado’s “terrestrial network authorized by FCC Order 20-48” could not coexist with various “DoD missions,” including DOD satellite systems “*aside from GPS*.”<sup>29</sup> To be clear, Ligado is a mobile satellite services provider that *does not provide GPS services*. In other words, the National Academies’ report made clear that in DOD’s undocumented view, Ligado’s terrestrial spectrum is necessary for DOD services, separate and apart from any GPS activity.

46. The National Academies’ report’s statements regarding DOD’s use of Ligado’s spectrum are also consistent with public statements made by high-ranking DOD personnel in testimony before the Senate Armed Services Committee in May 2020—after the FCC had granted Ligado’s Applications for modified ATC authority. Specifically, DOD officials testified that DOD “has to be able to operate in [Ligado’s] spectrum”; that DOD’s interest involves “not just GPS”

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<sup>28</sup> National Academies of Sciences, Engineering, and Medicine, *Analysis of Potential Interference Issues Related to FCC Order 20-48* at p. 56 (The National Academies Press, 2022), <https://nap.nationalacademies.org/read/26611> (hereinafter the “National Academies’ Report”).

<sup>29</sup> *Id.* at 56–57 (emphasis added).

but also “commercial communication satellites *and other types of satellites* that bring signals down” to Earth; and that DOD was “seek[ing] to protect the services reserved for satellite communication”—*i.e.*, the entire L-Band, and not just the sliver of spectrum designated for GPS receivers.<sup>30</sup>

47. On information and belief, DOD’s systems have continuously used Ligado’s authorized spectrum since at least April 22, 2020 (the date of the FCC Order modifying Ligado’s license and ATC authority)—and continue to use that spectrum today—by: (1) transmitting or receiving signals in Ligado’s allocated spectrum that prevent Ligado from transmitting or receiving its own signals in its exclusively licensed spectrum; and/or (2) receiving signals adjacent to Ligado’s allocated spectrum in a manner that requires that Ligado’s allocated spectrum be a “dead zone” for terrestrial services so as to avoid harmful interference with DOD’s systems.<sup>31</sup> In either case, DOD’s systems rely on and use spectrum for which DOD has no license, and that the FCC has exclusively licensed to and authorized for use by Ligado. And DOD has not compensated Ligado for the use of its exclusively licensed spectrum. Such use has prevented, and will continue to prevent, Ligado from using its duly and exclusively licensed spectrum for terrestrial services.

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<sup>30</sup> Hearing to Receive Testimony on Department of Defense Spectrum Policy and the Impact of the Federal Communications Commission’s Ligado Decision on National Security Before the Senate Armed Servs. Comm. 116th Cong., at 54, 73, 74, 77 (2020), [https://www.armed-services.senate.gov/imo/media/doc/20-21\\_05-06-2020.pdf](https://www.armed-services.senate.gov/imo/media/doc/20-21_05-06-2020.pdf) (emphasis added) (hereinafter “Senate Armed Services Committee Hearing Tr.”).

<sup>31</sup> FCC Commissioner Carr recently made a statement in an unrelated FCC proceeding explaining this concept: “[P]hysically occupying an assigned spectrum band is not the only way that federal users or other incumbents can prevent a valuable swath of airwaves from being put to its highest and best use. One other way is through receivers that ‘listen in’ on frequencies that are beyond their assigned bands.” *In the Matter of Promoting Efficient Use of Spectrum through Improved Receiver Interference Immunity Performance*, ET Docket No. 22-137 (April 21, 2022) (Statement of FCC Commissioner Carr), <https://docs.fcc.gov/public/attachments/FCC-22-29A3.pdf>.

**V. DOD and DOC Advanced Pretextual Claims of Harmful Interference to GPS in Order to Conceal DOD’s Use of Ligado’s Spectrum.**

48. Prior to the issuance of the April 2020 FCC Order, and in an effort to prevent Ligado from obtaining approval of its 2015 Applications and to protect DOD’s ability to operate previously undisclosed systems that use or depend on Ligado’s exclusively licensed spectrum without compensation, DOD (and its ally, DOC) adopted a strategy of deceit and misinformation. As discussed in Section III, *supra*, both agencies had recognized that Ligado’s proposed terrestrial services would not cause harmful interference to GPS receivers. But as Ligado inched closer to receiving final FCC approval to use its ATC authority to provide 5G terrestrial communications services, DOD and DOC abruptly changed positions and began actively campaigning against Ligado to officials across the U.S. Government based solely on the false claim that Ligado’s services would cause widespread harmful interference to GPS. Despite prior support for Ligado’s license modification Applications (including from officials in DOD and DOC) and despite the scientific studies concluding that Ligado’s intended use of the spectrum would not harmfully interfere with GPS receivers (including the NASCTN testing overseen at a DOD and DOC lab), DOD and DOC changed course in 2018 and opposed Ligado’s plans—all without notifying the FCC or Ligado of the real reason behind their objections.

49. In the spring of 2018, two new officials were confirmed to senior positions at DOD; both had responsibility for spectrum-related issues. The arrival of these two officials caused a seismic shift in official DOD policy toward Ligado’s December 2015 Applications, but there was no scientific or other principled basis to support the change.

50. In July 2018, senior career officials in the office of the DOD CIO, including the Whistleblower, met with one of these new appointees to discuss Ligado’s December 2015 Applications. The DOD CIO career officials told Ligado in advance of the meeting that “technical

issues about GPS have been solved” and the only issue remaining was to determine whether GPS should get any protection in one section of Ligado’s bandwidth, even though GPS is not “entitled to any protection in that spectrum” as a matter of law. The career officials also noted that DOD’s own testing “shows [another commercial L-Band operator] will not experience interference,” “GPS agreements plus lower power level[s] protect GPS much more than they need,” and “[a]viation is safe according to FAA and DOT.” Shortly after this meeting, these technical experts on spectrum policy for the DOD CIO including the Whistleblower were cut out of the process by their superiors, including by the now-disgraced Deputy CIO for Command, Control and Communications at DOD, Frederick D. Moorefield, Jr.

51. Moorefield, the recently indicted Deputy DOD CIO, described by DOD CIO Dana Deasy as the “heart and soul” and “man that is actually responsible for managing spectrum across the DOD” carried out the plan against Ligado on behalf of DOD. In July 2018, the DOD Whistleblower alleged that Mr. Moorefield took steps to systemically engage in improper or illegal contracts to hire unqualified, subservient external contractors to evaluate Ligado’s Applications.

52. On December 3, 2018, DOD submitted a letter, drafted by Moorefield, to NTIA advocating that “proposals to operate services in bands adjacent to GPS should not be approved unless, at a minimum, they do not exceed” a single decibel (“1 dB”) change in the carrier-to-noise ratio (the so-called “1 dB metric”).<sup>32</sup> In support, DOD cited a Department of Transportation (“DOT”) study that purported to assess whether GPS receivers would “experience a 1 dB carrier-

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<sup>32</sup> Letter from Dana Deasy, EXCOM Acting Co-Chair and Chief Information Officer of the Department of Defense, and Heidi R. King, EXCOM Acting Co-Chair and Deputy Administrator of the National Highway Traffic Safety Administration, to David J. Redl, Assistant Secretary for Communications and Information and Administrator of the National Telecommunications and Information Administration (Dec. 3, 2018), [https://www.ntia.doc.gov/files/ntia/publications/ntia\\_letter\\_to\\_fcc\\_chairman\\_re\\_ligado\\_mss\\_atc\\_applications\\_dec.\\_6\\_2019.pdf](https://www.ntia.doc.gov/files/ntia/publications/ntia_letter_to_fcc_chairman_re_ligado_mss_atc_applications_dec._6_2019.pdf).

to-noise density ratio (C/N<sub>0</sub>) degradation in the reception of any GPS (or GNSS) satellite signal” when exposed to transmissions in adjacent spectrum.<sup>33</sup> Based on this study and the artificial criterion of this “1 dB metric,” DOD recommended that the FCC deny Ligado’s December 2015 Applications.<sup>34</sup>

53. The FCC, which is subject to the Administrative Procedures Act, uses a codified harmful interference standard, which defines harmful interference as “[i]nterference that endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service.”<sup>35</sup> By contrast, DOD’s proposed 1 dB metric—which does not focus on performance degradation—was found by the FCC (a fact that was communicated to DOD early on) to be scientifically unsound and legally irrelevant to the FCC’s assessment of harmful interference. In a letter to Senator Mike Lee, then FCC Chairman Ajit Pai confirmed that the “Commission has never before applied [a 1 dB] metric for determinations of harmful interference to adjacent bands.”<sup>36</sup> Yet DOD and DOC reversed course to support the validity of a 1 dB metric because application of this “metric” would foreclose Ligado’s use of its spectrum. With Ligado foreclosed from using its spectrum, DOD would be able to take Ligado’s spectrum and continue to use it without compensation. But as the agency with exclusive jurisdiction over the allocation of spectrum, the FCC’s standard for assessing harmful interference is the only standard that is legally relevant. As discussed in Section VI, *infra*,

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<sup>33</sup> See April 2020 FCC Order ¶ 36.

<sup>34</sup> Letter from Deasy and King to Redl (Dec. 3, 2018). A decibel is a measure of the carrier-to-noise ratio (“C/N<sub>0</sub>”) or the strength of a desired signal as compared to undesired background noise.

<sup>35</sup> 47 C.F.R. § 101.3.

<sup>36</sup> Letter from Ajit Pai, Chairman of the Federal Communications Commission to Mike Lee, U.S. Senator (June 12, 2020). <https://www.lee.senate.gov/services/files/b5fbe322-c4be-4389-8d4b-cda4531ba011>.

the FCC made its final determination on this issue in the April 2020 FCC Order, in which it wholesale rejected the 1 dB metric and the DOT study as technically flawed and inconsistent with the harmful interference standard.<sup>37</sup>

54. Other experts agreed with the FCC that harmful interference was the appropriate standard, not 1 dB. Industry experts derided the 1 dB metric as illogical and unsupportable. NTIA, too, has previously criticized the use of the metric. During a June 22, 2017 IRAC Technical Focus Group meeting, NTIA’s Chief of Spectrum Engineering and Analysis Division chastised Air Force representatives for repeatedly proposing policy cases to support a 1 dB metric absent technical evidence of its usefulness.

55. In 2019, additional DOD officials sent letters to the FCC further advocating for the unfounded 1 dB metric and against Ligado’s December 2015 Applications.<sup>38</sup> These DOD officials stated that “there are too many unknowns” and the risks to GPS were too great to allow Ligado’s Applications to proceed, but failed to provide any scientific evidence to support these alleged concerns, and omitted any mention of the years of testing—including by a DOD-sponsored lab—that refuted claims of harmful interference to GPS.

56. Following these letters, NTIA similarly reversed course and concluded that NTIA could not support Ligado’s December 2015 Applications before the FCC.<sup>39</sup> Like DOD, NTIA

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<sup>37</sup> April 2020 FCC Order ¶¶ 48; 54–59; 126.

<sup>38</sup> Letter from Patrick M. Shanahan, Acting Secretary of Defense, to Ajit Pai, Chairman of the Federal Communications Commission (June 7, 2019), [https://www.ntia.doc.gov/files/ntia/publications/ntia\\_letter\\_to\\_fcc\\_chairman\\_re\\_ligado\\_mss\\_atc\\_applications\\_dec\\_6\\_2019.pdf](https://www.ntia.doc.gov/files/ntia/publications/ntia_letter_to_fcc_chairman_re_ligado_mss_atc_applications_dec_6_2019.pdf); Letter from Mark T. Esper, Secretary of Defense, to Ajit Pai, Chairman of the Federal Communications Commission (Nov. 18, 2019), [https://www.ntia.doc.gov/files/ntia/publications/ntia\\_letter\\_to\\_fcc\\_chairman\\_re\\_ligado\\_mss\\_atc\\_applications\\_dec\\_6\\_2019.pdf](https://www.ntia.doc.gov/files/ntia/publications/ntia_letter_to_fcc_chairman_re_ligado_mss_atc_applications_dec_6_2019.pdf).

<sup>39</sup> Letter from Douglas W. Kinkoph, Deputy Assistant Secretary for Communications and Information (Acting) to Ajit Pai, Chairman of the Federal Communications Commission (Dec.

completely reversed its prior support for FCC approval of Ligado's Applications. As publicly reported and evidenced by internal NTIA emails disclosed in response to Freedom of Information Act ("FOIA") requests, NTIA "originally contemplated a strategy for conditionally approving Ligado Networks' 5G plans—months before denouncing the company's proposal as a threat to national security."<sup>40</sup> Emails from early 2019 show that NTIA and its then-Administrator, David Redl, were planning to support Ligado's Applications with the FCC.<sup>41</sup> Soon after, Redl was fired by then-Secretary of Commerce Wilbur Ross. As former FCC Commissioner Mike O'Rielly explained in congressional testimony, "NTIA has had a different viewpoint over the time period, and it wasn't until the dismissal of [Redl] that the position" suddenly changed to oppose Ligado's Applications, in line with DOD's newfound stance.<sup>42</sup>

57. Inside DOD and DOC, it was well known that opposition to Ligado's FCC Applications in the name of protecting GPS from harmful interference was not credible. For instance, internal DOD emails show that during a March 24, 2017 meeting, DOD CIO technical staff concluded that Air Force had "no technical merits, nor regulatory merits, to oppose FCC; and Ligado has sufficient technical and regulatory merits for license approval by the FCC."

58. Similarly, in a June 2017 email, the Whistleblower (then a senior DOD CIO official) criticized Air Force Space Command for its unsupported position on harmful GPS

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6, 2019), [https://www.ntia.doc.gov/files/ntia/publications/ntia\\_letter\\_to\\_fcc\\_chairman\\_re\\_ligado\\_mss\\_atc\\_applications\\_dec\\_6\\_2019.pdf](https://www.ntia.doc.gov/files/ntia/publications/ntia_letter_to_fcc_chairman_re_ligado_mss_atc_applications_dec_6_2019.pdf).

<sup>40</sup> John Hendel, *Trump Administration Originally Contemplated Approving Ligado's 5G Plan, Records Show*, Politico (June 29, 2020), <https://subscriber.politicopro.com/article/2020/06/trump-administration-originally-contemplated-approving-ligados-5g-plan-records-show-1958225?source=email>.

<sup>41</sup> *Id.*

<sup>42</sup> Alexandra S. Levine, *Morning Tech*, Politico (June 16, 2020), <https://www.politico.com/newsletters/morning-tech/2020/06/17/google-stokes-gop-allegations-of-tech-bias-788590>.

interference. Arguments based on Ligado’s old proposal and the 1 dB metric were “incomplete and deficient,” the email stated. The Whistleblower’s email stated that DOD ignored “an elephant in the analytical room”: the fact that *all* major commercial GPS receiver manufacturers had backed Ligado’s proposal. Finally, the email noted that it was striking that Air Force had so far found “no tolerable commercial uses at all adjacent to GPS, not even fairly distant from GPS.” “At some point soon,” the email continued, DOD and Air Force “will have to answer with not just what we cannot do, but what we can do to inform and support such proposals.”

59. Likewise, in response to a March 2018 email from Air Force Space Command seeking “sister service support” for a position paper endorsing the 1 dB metric, the Navy responded it “cannot support the position paper” because “[t]here is no analytical rigor in the paper” and “no mention of what Ligado might potentially do to out of band receivers” [meaning GPS receivers operating outside their designated bands]. And in approximately November 2018, the DOD Whistleblower informed high-level officials in DOD that its position on the harmful effects of Ligado’s use of its spectrum to GPS “overreaches to the point of falsity” and will be “criticized as disingenuous...”

60. Officials within the Joint Chiefs of Staff (“Joint Staff”) were becoming increasingly involved in determining DOD’s position and directing DOD’s actions with regard to Ligado’s FCC Applications. According to individuals with knowledge of DOD’s actions, the Joint Staff was “driving all efforts” to oppose FCC approval of Ligado’s Applications. Officials from Air Force and the DOD Office of General Counsel were told to “stand down” and “back off” when they attempted to obtain additional information about why the Joint Staff was representing to others in the U.S. Government that DOD opposed Ligado’s license modification Applications and was seeking to have the FCC deny them.

61. DOD took its anti-Ligado campaign to other Executive Branch agencies too. DOD told the National Security Council, the National Economic Council, the Office of Management and Budget, the Office of Science and Technology Policy, and possibly others that Ligado's services would cause harmful interference to GPS. Tellingly, in response to repeated requests from those Executive Branch authorities for DOD to provide evidence to support its assertions, DOD never did so. On information and belief, DOD did not provide the requested information for the simple reason that DOD cannot substantiate its claims of harmful GPS interference.

62. DOD and DOC leveled these unsubstantiated claims at Ligado as a threat to GPS to protect and to mask DOD's own use of Ligado's authorized spectrum. Moreover, DOD and DOC propagated—and continue to propagate—misleading and scientifically meritless arguments about harmful GPS interference to sister agencies, the White House, and Congress. By injecting these artificial concerns into the FCC process, DOD and DOC caused years-long delay, thereby wasting taxpayer money and the time of numerous government agencies.<sup>43</sup>

## **VI. The FCC Unanimously Granted Ligado Exclusive Authority to Deploy Terrestrial 5G Services Within Its Licensed Spectrum.**

63. On April 22, 2020, the FCC unanimously approved Ligado's license modification Applications, and modified Ligado's exclusive license and ATC authority to enable it to operate 5G terrestrial communications services within the 1526 to 1536 MHz, 1627.5 to 1637.5 MHz, and 1646.5 to 1656.5 MHz bands, in addition to its existing satellite network.<sup>44</sup> In doing so, the FCC

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<sup>43</sup> It is worth noting that even if there were legitimate harmful GPS interference concerns (there are not), it would not change the fact that Ligado has been denied the ability to use its FCC license and ATC authority for terrestrial services by the United States. Whether it is to protect previously undisclosed DOD systems or GPS receivers, Ligado's exclusive property has been taken—both physically and regulatorily—and just compensation is required under the Fifth Amendment.

<sup>44</sup> See April 2020 FCC Order at ¶ 1.

explicitly rejected DOD and DOC's assertions about harmful interference to GPS. The FCC Order represented the culmination of a decade-long rulemaking process and spanned 74 pages with 444 footnotes.

64. In the April 2020 FCC Order, the FCC concluded that its approval would “provide[] regulatory certainty to Ligado, ensure[] adjacent band operations, including Global Positioning System (GPS), are sufficiently protected from harmful interference, and promote[] more efficient and effective use of our nation’s spectrum resources by making available additional spectrum for advanced wireless services, including 5G.”<sup>45</sup> The FCC found that “it is in the public interest to grant the [December 2015 Applications] to facilitate the deployment of a low power terrestrial-based network in [Ligado’s] licensed MSS spectrum.”<sup>46</sup>

65. The FCC commended Ligado for addressing concerns raised by GPS receiver manufacturers and limiting any risk of harmful interference caused by the out-of-band reception of those devices.<sup>47</sup> The FCC noted that Ligado’s work in support of its Applications “demonstrate[s] the diligence with which Ligado has attempted to address adjacent band concerns.”<sup>48</sup>

66. The FCC also addressed, and rejected, the concerns of DOD and DOC.<sup>49</sup>

67. The FCC made the following specific findings:

- a. Ligado’s planned broadcast power levels and the coexistence agreements it had reached with the GPS industry “significantly lower the potential for

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<sup>45</sup> *Id.* ¶ 1.

<sup>46</sup> *Id.* ¶ 2.

<sup>47</sup> *Id.* ¶¶ 25–34.

<sup>48</sup> *Id.* ¶ 34.

<sup>49</sup> *Id.* ¶¶ 97, 100.

harmful interference to GPS devices, including those owned by the U.S. Government;<sup>50</sup>

- b. The 1 dB metric championed by DOD is “inconsistent with established spectrum management policies designed to avoid harmful interference, and is also unsupported by the record;”<sup>51</sup>
- c. The studies cited by DOD in opposition to Ligado’s Applications (specifically, Air Force testing and the DOT study relying on the 1 dB metric) used imprecise methodologies and inapplicable assumptions, thereby overestimating the potential for harmful interference;<sup>52</sup> and
- d. Any potential for harmful interference could be mitigated through information sharing between Ligado and the U.S. Government, including to identify and repair or replace affected devices, and through negotiating Ligado’s broadcast power levels near the devices.<sup>53</sup>

68. The FCC provided for information sharing between the U.S. Government and Ligado under the April 2020 FCC Order to support Ligado’s development of commercial terrestrial services authorized by its spectrum license. For example, the Order provided that affected agencies should “provide information to Ligado,” including geographic areas of potential concern, work with Ligado to “develop[] a program to repair or replace any such devices . . . that could be affected” by Ligado’s terrestrial operations, and “immediately” notify Ligado if an unrepairable or unreplaceable GPS receiver should be affected by Ligado’s services.<sup>54</sup> The Order also expected that “Ligado and U.S. Government agencies” would “work together in good faith, including with regard to negotiation to resolve any disputes.”<sup>55</sup>

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<sup>50</sup> *Id.* ¶ 100

<sup>51</sup> *Id.* ¶¶ 48; 126.

<sup>52</sup> *Id.* ¶¶ 54–57; 100.

<sup>53</sup> *Id.* ¶¶ 101–104.

<sup>54</sup> *Id.* ¶¶ 101, 103.

<sup>55</sup> *Id.* ¶ 104.

69. The FCC directed Ligado to deploy a program within six months of the date of the Order (*i.e.*, by October 2020) that would facilitate the information sharing and coordination called for by the Order.<sup>56</sup>

70. The FCC determined that the findings and provisions in its Order “constitute appropriate and reasonable measures to address the federal agencies’ concerns, including concerns about current ‘unknowns’ and risks.”<sup>57</sup> It further noted that DOD’s most recent submissions through NTIA “convey[ed] no new information, data, or arguments.”<sup>58</sup> In fact, in April 2016, the FCC first asked all stakeholders, including U.S. Government stakeholders like DOD and DOC, to provide examples of GPS receivers that would be affected by Ligado’s terrestrial services. DOD and DOC never provided any such examples.

71. The FCC’s decision approving Ligado’s 2015 Applications did not grant DOD or any other federal agency the right to interfere with or alter Ligado’s services in the L-Band, or to operate their own systems within Ligado’s exclusively authorized spectrum. Indeed, the FCC reaffirmed its unique and exclusive role to manage spectrum users, concluding “it is the Commission that is vested with Title III authority to determine how to manage spectrum use.”<sup>59</sup> In concurring statements, Commissioner Carr and Commissioners Rosenworcel and Starks commended the rigor of the FCC staff members’ technical analysis.<sup>60</sup>

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<sup>56</sup> *Id.* ¶ 144.

<sup>57</sup> *Id.* ¶ 106.

<sup>58</sup> *Id.* ¶ 126.

<sup>59</sup> *Id.* ¶ 128 n.422; *see also id.* ¶¶ 129–130 (concluding the April 2020 FCC Order complies with Section 343 of the Communications Act of 1934, 47 U.S.C. § 343).

<sup>60</sup> April 2020 FCC Order at p. 73 (Statement of FCC Commissioner Carr); April 2020 FCC Order at p. 74 (Joint Statement of FCC Commissioners Rosenworcel and Starks).

72. DOD and DOC's requests that the FCC deny Ligado's Applications because of alleged harm to GPS devices had one thing in common: they had no support in science or law, which is why the FCC denied them. Indeed, the April 2020 FCC Order expressly addressed DOD's and DOC's asserted harmful GPS interference concerns, identified the lack of scientifically sound evidence to support those concerns, and unanimously concluded that there is no credible evidence that Ligado's terrestrial services would harmfully interfere with GPS receivers.

73. In reliance on the FCC's Order granting Ligado highly valuable property rights relating to its modified ATC authority to deploy terrestrial 5G services within its exclusively licensed spectrum, Ligado completed a comprehensive recapitalization and fundraising transaction in October 2020. Billions of dollars of new capital were invested to support the Company's deployment of terrestrial services in a manner consistent with the April 2020 FCC Order, including approximately \$4 billion in new debt and the conversion of approximately \$6 billion of existing debt to equity.

**VII. In Contravention of Well-Established Law, DOD and DOC Have Refused to Implement the April 2020 FCC Order and Have Prevented Ligado from Using Its Right to Deploy Terrestrial Services in its Spectrum.**

74. Since the issuance of the April 2020 FCC Order, rather than work with Ligado and other federal agencies in good faith to address any legitimate concerns about harmful interference to GPS—as, for example, the FCC and NTIA recently did in helping to craft a coexistence arrangement between the FAA, Verizon, and AT&T to address concerns over potential interference to aircraft instruments that utilize the C-Band from terrestrial 5G networks—DOD and DOC have instead obstructed Ligado's good-faith efforts to implement the provisions of the April 2020 FCC Order. In fact, rather than work with Ligado, DOD officials told multiple witnesses at the FCC that they wanted to “kill the company,” referring to Ligado.

75. DOD and DOC have also refused Ligado's repeated requests to discuss solutions to any purported concerns about harm to GPS receivers. This obstruction and refusal to engage has frustrated Ligado's ability to use its exclusively licensed spectrum, wholly prevented Ligado from using its ATC authority to deploy terrestrial services, and diminished Ligado's reasonable investment-backed expectations, including that the Company would be able to develop its spectrum and commence an FCC-authorized terrestrial business.

76. On May 22, 2020, NTIA, on DOD's behalf, filed a petition with the FCC for a stay of the April 2020 FCC Order and a petition for reconsideration based on the same pretextual arguments that a 1 dB metric—which had already been thoroughly considered and rejected by the FCC—was needed to protect GPS receivers. NTIA did *not* disclose in its reconsideration petition that DOD had been using Ligado's exclusively licensed spectrum, and instead advanced only arguments about harmful GPS interference that had already been rejected by the FCC.

77. Ligado has complied with the April 2020 FCC Order and has tried diligently to share information with DOD and DOC, address their concerns, and establish the repair-and-replace program called for by the Order. However, citing the pending reconsideration petition, DOD and DOC have baselessly refused to cooperate with Ligado as called for by the Order. They have stonewalled Ligado's efforts to coordinate and share information, including by directing other agencies not to coordinate with Ligado, thereby impeding Ligado from using its exclusively licensed spectrum (and destroying the value of Ligado's ATC authority).

78. On June 30, 2020, Ligado sent letters to approximately 15 agency members of IRAC, including DOD and DOC. Consistent with the April 2020 FCC Order, the letters asked those agencies how Ligado could assist in the agencies' evaluations of potential harmful interference to GPS from Ligado's services, if any, and in what circumstances such interference

could occur so that Ligado could identify potentially impacted systems and correct any potential issues. Ligado followed up with similar letters to these agencies at least three additional times in March 2021, September 2021, and June 2022. No agency substantively responded to Ligado's outreach.

79. The few agencies that acknowledged Ligado's letters, including DOD, provided a nonsensical excuse for their inaction, stating that, given NTIA's pending reconsideration petition, "it would be premature to begin implementation discussions." The Communications Act is clear, however, that a petition for reconsideration shall not "excuse any person from complying with or obeying any order . . . of the Commission, or operate in any manner to stay or postpone the enforcement thereof."<sup>61</sup> The stonewalling of Ligado by DOD and others has further stymied Ligado's ability to use its FCC license and ATC authority.

80. On January 19, 2021, the FCC denied NTIA's petition to stay the April 2020 FCC Order.<sup>62</sup> The FCC found that NTIA had not met any of the requirements for a stay: NTIA was unlikely to succeed on the merits, it would suffer no irreparable harm, Ligado would suffer far greater harm from a stay, and a stay would not be in the public interest.<sup>63</sup> Although the April 2020 FCC Order was final and effective as of the date it was issued by the FCC on April 22, 2020, the FCC's denial of NTIA's petition to stay solidifies the finality of the FCC's decision. Indeed, the FCC's decision remains undisturbed to this day, well over three years later.

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<sup>61</sup> 47 U.S.C. § 405(a).

<sup>62</sup> See *In the Matter of Ligado Amendment to License Modification Applications*, IB Docket Nos. 12-340 and 11-109 (January 19, 2021) (Order Denying Motion for Stay), <https://docs.fcc.gov/public/attachments/FCC-20-48A1.pdf>

<sup>63</sup> *Id.* ¶ 9.

81. After the FCC denied the stay petition, Ligado again reached out (on March 12, 2021) to IRAC member agencies and to NTIA. Only one agency responded substantively, with the others not responding at all or claiming that the pending reconsideration petition excused their need to engage with Ligado, despite the denial of the stay, the text of the Communications Act, and the clear provisions of the April 2020 FCC Order.

82. The one agency that did engage with Ligado indicated that the rest of the U.S. Government was firmly opposed to doing so because of pressure coming from DOD and NTIA. Indeed, rather than face opposition from DOD and DOC, the agencies simply refused to engage with Ligado. And to this day, DOD and DOC have refused to engage with Ligado concerning DOD's purported concerns of harmful interference to GPS receivers. FOIA disclosures show that NTIA has been in possession of information "quantify[ing]" GPS device use by federal agencies relevant to Ligado's terrestrial communications services since 2018, but NTIA never provided this information to Ligado or the FCC, either before the April 2020 FCC Order or in support of their petition for reconsideration.<sup>64</sup>

83. These federal agencies' refusal to implement the April 2020 FCC Order and respect the FCC's authoritative resolution of these issues has hindered Ligado's use of its exclusively licensed spectrum, and has wholly blocked Ligado from using its ATC authority, drawing criticism from the FCC. In April of 2022—two years after the April 2020 FCC Order—FCC Commissioner Carr lamented that the L-Band is "a valuable stretch of spectrum . . . that has been effectively sitting on the sidelines for over ten years now" with no 5G service "despite the FCC authorizing it

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<sup>64</sup> Letter from Valerie Green, Executive Vice President and Chief Legal Officer, Ligado Networks LLC, to Marlene H. Dortch, Secretary of the Federal Communications Commission (June 30, 2022), <https://files.fcc.gov/ecfs/download/c6e5713e-73fe-4c86-b0ec-26645f5591a0?orig=true&pk=cb77b2ec-1a58-dbc6-139b-ad192cf5d9b>.

and the band having a great mix of coverage and propagation characteristics.”<sup>65</sup> He went on to criticize “the federal users’ public arguments,” stating that if you “boil them down to their essence, it comes down to a disagreement over how much interference federal devices experience when they listen in to a spectrum band located far, far away from their assigned frequencies.”<sup>66</sup>

84. In addition, officials from multiple federal agencies that operate programs reliant on GPS technology have told Ligado that they were instructed by DOD and DOC to not cooperate or speak with Ligado after the FCC issued its Order. Officials have told Ligado that they do not believe there is any merit to the claims that Ligado’s 5G services would interfere with GPS receivers.

85. The refusal by federal agencies to work with Ligado—orchestrated by DOD and DOC—has directly impeded the Company’s efforts to develop its authorized spectrum pursuant to the April 2020 FCC Order. Without engagement from federal agencies (and DOD and NTIA in particular), Ligado cannot implement the provisions of the Order and thus cannot commence its duly authorized terrestrial L-Band services. DOD and DOC’s intransigence also illustrates the contradiction between DOD’s and NTIA’s publicly stated concerns for GPS and the U.S. Government’s private use of Ligado’s authorized spectrum without compensation.

86. DOD and DOC’s actions have destroyed Ligado’s reasonable investment-backed expectations. Ligado and its investors have spent billions of dollars and years of hard work in reliance on the reasonable expectation that the April 2020 FCC Order would enable Ligado to use its authorized spectrum for terrestrial services. If agencies like DOD and DOC can appropriate

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<sup>65</sup> *In the Matter of Promoting Efficient Use of Spectrum through Improved Receiver Interference Immunity Performance*, ET Docket No. 22-137 (April 21, 2022) (Statement of FCC Commissioner Carr), <https://docs.fcc.gov/public/attachments/FCC-22-29A3.pdf>.

<sup>66</sup> *Id.*

without compensation the exclusive right to use spectrum that is afforded to companies like Ligado by the FCC, it will not only destroy Ligado but will chill others from investing in critical communications infrastructure and spectrum. If left unchecked, such uncompensated and unfettered appropriation of a company's FCC license by other government agencies will detrimentally undermine the authority of the FCC to exclusively regulate commercial spectrum, cast doubt on the finality of FCC decision-making and regulatory processes, and create a dangerous precedent of governmental seizure of private property. These actions call into question the value of other current licenses and potentially undercut company investments and undermine the public interest.

**VIII. Having Lost Before the FCC, DOD Provided Misleading Information to Congress Aimed at Preventing Ligado from Using Its License and Terrestrial Authorization.**

87. While DOD and DOC stonewalled Ligado and caused others to do the same—all to avoid paying Ligado just compensation—DOD was also actively pushing Congress to pass legislation that would frustrate Ligado's use of its exclusively licensed spectrum and effectively block Ligado from using its authority to provide terrestrial communications services. These were concerted efforts to keep Ligado from providing terrestrial communications services so that DOD could continue to use Ligado's exclusively licensed spectrum without compensation.

88. On May 6, 2020, two weeks after the April 2020 FCC Order, the Senate Armed Services Committee convened a hearing, at which DOD officials rallied support for such legislation. Entitled “Department of Defense Spectrum Policy and the Impact of the Federal Communications Commission’s Ligado Decision on National Security,” the one-sided hearing featured three DOD officials as witnesses—DOD CIO Dana Deasy, Under Secretary of Defense Michael Griffin, and now retired Air Force Space Command General John Raymond—as well as a retired Coast Guard admiral. Disgraced Former Deputy CIO Moorefield spearheaded DOD’s

preparations for the hearing and sat directly behind the witnesses during their testimony. No one from the FCC, Ligado, or the GPS industry was invited to participate in the hearing. In the hearing, these DOD witnesses repeated the same debunked claims of harmful interference to GPS receivers that had already been addressed and rejected by the FCC. But this time, the audience lacked the technical background and familiarity with the lengthy history of the FCC proceedings necessary to challenge these claims—including Ligado’s many concessions, the contrary science, and the widespread support for Ligado’s intended use of its licensed spectrum, including by DOD itself previously.

89. DOD officials presented false or misleading information to Congress during the hearing. On information and belief, members of Congress were generally unfamiliar with the meticulous review conducted by the FCC that resulted in the April 2020 FCC Order. Some Members of Congress were under the misimpression that the 20 years of FCC proceedings leading up to its decision were akin to something “done on the weekend.”<sup>67</sup> When asked by the Chairman of the Armed Services Committee whether DOD was “consulted by or asked by the FCC for [its] opinions” during the FCC’s consideration of Ligado’s application, Under Secretary of Defense Griffin testified, “no, sir, there was not a give and take, a back and forth that we typically go through. *And at the end of the day, we were completely caught off guard when over that weekend in April the decision was taken by the FCC to go ahead and move forward.*”<sup>68</sup> As then-FCC Chairman Pai confirmed in a letter to Senator Mike Lee, “Federal agencies [including the DOD] had actual possession of the draft that the FCC was poised to adopt—and thus an opportunity to

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<sup>67</sup> Senate Armed Services Committee Hearing Tr. at 94.

<sup>68</sup> See *id.* at 38.

comment on it—for almost *half a year* before FCC finally adopted it.”<sup>69</sup> The Whistleblower’s disclosures further confirm that the FCC provided the DOD with a draft order approving Ligado’s license modification on October 31, 2019.

90. DOD officials presented other false or misleading information during the same senate hearing. Admiral Thad Allen testified that the tests the FCC relied upon were “funded by Ligado, were not conducted in a transparent fashion and not widely supported.”<sup>70</sup> In reality, however, NASCTN administered the test with the oversight of DOD and DOC and the testing won the DOC’s Gold Medal Award. As the FCC Order recognized “NASCTN [is] a joint effort involving the NIST, NTIA, DOD, NASA... [providing] reliable and unbiased measurements and analyses.”<sup>71</sup>

91. Other Senators, from both sides of the aisle, were rightly troubled by the failure to include key stakeholders in the congressional process and recognized the importance of hearing from the FCC and Ligado rather than accepting uncritically DOD’s representations. Senator Tim Kaine observed, “[W]e have only heard one side of the case. . . . [T]he FCC is right in town and could have been at this hearing or Ligado.”<sup>72</sup> Senator Tom Cotton agreed, saying “[I]t is really important that we hear from the unanimous FCC and from Ligado as well for us to make a reasoned conclusion.”<sup>73</sup> Senator Angus King noted that the FCC is “an independent agency that reached a unanimous conclusion on something that has been extensively litigated”; that it must have “had

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<sup>69</sup> Letter from Ajit Pai, Chairman of the Federal Communications Commission to Mike Lee, U.S. Senator (June 12, 2020). <https://www.lee.senate.gov/services/files/b5fbe322-c4be-4389-8d4b-cda4531ba011>

<sup>70</sup> Senate Armed Services Committee Tr. at 34

<sup>71</sup> April 2020 FCC Order at p. 21 fn 130.

<sup>72</sup> *Id.* at 63.

<sup>73</sup> Senate Armed Services Committee Tr. at 67.

some basis for doing so,” especially since the April 2020 FCC Order “is one of the few unanimous orders” that has been issued by the FCC; and that it issued a “74-page order with 444 footnotes,” which indicates “that some serious thought went into it.”<sup>74</sup>

92. Despite these concerns, the Senate Committee did not hold another hearing to gather testimony from the FCC, Ligado, or the GPS industry. Although he was not invited to testify before the Senate Armed Services Committee, FCC Chairman Ajit Pai responded to the criticisms, explaining: “We made a decision based solely on the facts and the law. I will defend this decision before any forum in Congress or around the country. We’ve made a decision based . . . on sound engineering as opposed to the fear mongering we’ve heard.”

93. In addition, as part of this coordinated campaign to drum up support for legislation preventing Ligado from using its FCC license as authorized, DOD launched a public website, again laying out the meritless case that was presented to and rejected by the FCC. The website stated that DOD opposed “a license the Federal Communications Commission has granted to a private company, Ligado, to deploy a low-power nationwide mobile broadband network.”<sup>75</sup> The website posted sensationalistic warnings and made false and unsupported claims about the harm that Ligado would cause to both military and everyday civilian users of GPS. Screenshots of those false statements appear below:

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<sup>74</sup> *Id.* at 71–73.

<sup>75</sup> In late 2021, the website was taken offline. We provide screenshots from an archived version of the website below.

There are too many unknowns, and the risks are too great, to allow the proposed Ligado system to proceed. We risk lives and the security of the nation if GPS is interrupted for any amount of time.

## HOW THE LIGADO PROPOSAL COULD DISRUPT GPS

DOD would be subject to network interruptions in the supply systems for air, land and sea platforms across the services and food supply to the Defense Commissary Agency, which manages the stores where our soldiers, sailors, airmen, Marines and their families do their primary grocery shopping.

Information systems that run banking, the supply chain for all industries, and all aspects of an industry such as travel from reservation systems to air traffic control systems could be disrupted and information throughput slowed, and networks could go down intermittently or for extended periods.

First responders could be delayed in responding to calls as they would be unable to locate where the call is coming from. They would also have increased difficulty communicating through normal channels with other first responders and be unable to communicate across multiple jurisdictions.

In reality, contrary to the website’s baseless claims, the FCC concluded that “Ligado’s modified ATC network should not cause harmful interference to general location and navigation devices” and that “significantly reduced power levels at which Ligado will operate . . . significantly lower the potential for harmful interference to GPS devices, including those owned by the U.S. Government.”<sup>76</sup>

94. The website also derided Ligado’s spectrum with zero factual basis or support, claiming it “lacks the bandwidth, power or global ecosystem to deliver robust 5G services.”

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<sup>76</sup> April 2020 FCC Order at 52.

Ligado's proposed network lacks the bandwidth, power or global ecosystem to deliver robust 5G services. The only beneficiaries are Ligado shareholders.

In reality, the FCC Order approving Ligado's license modification concluded that the FCC's order "promote more efficient and effective use of our nation's spectrum by making available additional spectrum for advanced wireless services, including 5G."<sup>77</sup>

95. As part of a coordinated public smear campaign to destroy Ligado's reputation (in addition to the uncompensated taking of its multi-billion dollar asset), Secretary of Defense Mark Esper took the extraordinary and nearly unprecedented step of publishing an Op-Ed in *The Wall Street Journal*, sensationalizing claiming that the FCC's decision will "undermine U.S. national security and disrupt commerce and daily life."<sup>78</sup> The Op-Ed contained false statements about potential harmful interference with GPS, but also made unsupported attacks on Ligado's reputation and the quality of its spectrum, including that "[t]here is no evidence that [Ligado] has a technically viable 5G solution" and that Ligado was attempting to "maximize the value of its spectrum" at great "cost to Americans...."<sup>79</sup> The last time an acting Secretary of Defense published an op-ed was in 2003, when Donald Rumsfeld advocated in the Washington Post for invading Iraq.

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<sup>77</sup> *Id.* at 70.

<sup>78</sup> Mark Esper, The FCC's Decision Puts GPS at Risk, *The Wall Street Journal*, available at <https://www.wsj.com/articles/the-fccs-decision-puts-gps-at-risk-11588719423>.

<sup>79</sup> *See id.*

96. Responding to misinformation and immense pressure from DOD, Members of Congress began drafting amendments to the pending NDAA to take away Ligado's ability to provide terrestrial services in its exclusively licensed spectrum. The House of Representatives drafted legislation to ban Ligado and its customers from contracting with DOD and to limit DOD's ability to cooperate with any repair-and-replace program. The Senate introduced language mandating yet another technical review of DOD's claims.

97. In response to the proposed legislation DOD was trying to push through, numerous Members of Congress rallied in opposition. In October 2020, a bipartisan group composed of Senators Roger Wicker, Mark Warner, John Thune, Tim Kaine, Ron Johnson, and Todd Young sent a letter to Senate Armed Services Committee Chairman Jim Inhofe and Ranking Member Jack Reed urging them to strike certain NDAA provisions related to the FCC's decision approving Ligado's license modification Applications.

98. In November 2020, Chairman Frank Pallone and Ranking Member Greg Walden of the House Energy and Commerce Committee also opposed the legislation in a letter sent to Chairman Adam Smith and Ranking Member Mac Thornberry of the House Armed Services Committee, and characterized the proposed legislation as an attempt to limit or prevent DOD from implementing the provisions of the April 2020 FCC Order.

99. Despite these efforts, DOD persisted, and when the House and Senate met in conference committee in early December 2020, the language targeting Ligado became more stringent. Both House provisions and both Senate provisions were retained, and the committee eliminated findings that acknowledged Ligado's commitment to working with DOD to resolve the agency's concerns and cover certain of DOD's costs.

## IX. The 2021 NDAA Prevents Ligado from Using Its FCC License and ATC Authority.

100. The 2021 NDAA became law on January 1, 2021.<sup>80</sup> The 2021 NDAA contains four sections in Subtitle E of Title XVI that make it impossible for Ligado to use the ATC authority conferred by Ligado's FCC license without DOD's sign-off. The most problematic of these provisions is Section 1662, which states:

**Section 1662—Limitation on Awarding Contracts to Entities Operating Commercial Terrestrial Communication Networks that Cause Harmful Interference with the Global Positioning System.** The Secretary of Defense may not enter into a contract, or extend or renew a contract, with an entity that engages in commercial terrestrial operations using the 1525–1559 megahertz band or the 1626.5–1660.5 megahertz band unless the Secretary has certified to the congressional defense committees that such operations do not cause harmful interference to a Global Positioning System device of the Department of Defense.<sup>81</sup>

101. Ligado is the only company authorized to utilize spectrum for terrestrial operations in the 1525–1559 megahertz band or the 1626.5–1660.5 band. Section 1662 was intended to be, and has been, devastating to Ligado's business. It specifically targets terrestrial services in Ligado's exclusively licensed spectrum. Section 1662 is a warning to all current and potential partners and customers of Ligado: if you contract with Ligado to use its licensed spectrum for terrestrial operations, you will no longer be allowed to do business with DOD.

102. There is no question that the NDAA was designed to target Ligado. In December 2020, House Energy and Commerce Committee Ranking Member Cathy McMorris Rodgers opposed inclusion of the language in the NDAA that singled out Ligado: "The NDAA shouldn't target an American company that will hurt our ability to beat China in the 5G race. Why single out an American company focused on boosting our country's 5G leadership but leave out

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<sup>80</sup> See William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, Pub. L. 116-283, §§ 1661–1664, 134 Stat. 3388, 4073–76 (2021).

<sup>81</sup> *Id.* § 1662.

protections against Chinese drone manufacturers threatening our national security? This should be made right.”<sup>82</sup> Former Chairman of the FCC Mark Fowler described the NDAA as follows:

Defense lobbyists have now inserted language into the annual defense bill that among other things forbids Pentagon contract awards to Ligado or any company who uses Ligado. ***This soft corruption violates all limits of restraint in the U.S. Constitution.*** These punitive provisions should be seen for what they are: ***bullying by the Defense Department lobbyists, who view U.S. spectrum as ‘theirs.’***<sup>83</sup>

And public reporting, including in *Forbes*, explained that “any company that uses Ligado’s network is not permitted to have a contract with the U.S. Department of Defense, a substantial disincentive to doing business with Ligado.”<sup>84</sup>

103. Given that the ability to contract with DOD is essential to businesses operating in the telecommunications industry, the provision effectively prohibits any firm from doing business with Ligado with respect to its terrestrial services. Indeed, Ligado has been told by potential commercial partners that Ligado is too “hot” to do business with as a result of Section 1662 and DOD’s hostile attitude towards Ligado.

104. From January 2021 through mid-2022, Ligado engaged two investment bankers to pursue a strategic outreach process with companies that could utilize Ligado’s spectrum, conducting meaningful diligence. Every one of those potential partners expressed concerns about the impact of the NDAA on their ability to work with Ligado. Ultimately, no one agreed to partner with Ligado to support their 5G connectivity plans.

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<sup>82</sup> Press Release, Congresswoman Cathy McMorris Rodgers, McMorris Rodgers Statement on NDAA Provisions Regarding Ligado (Dec. 4, 2020), <https://mcmorris.house.gov/posts/mcmorris-rodgers-statement-on-ndaa-provisions-regarding-ligado>.

<sup>83</sup> Mark Fowler, *Spectrum War Ceasefire: Trust the FCC on Ligado* (Oct. 7, 2020), available at <https://morningconsult.com/opinions/spectrum-war-ceasefire-trust-the-fcc-on-ligado/>.

<sup>84</sup> Forbes, Yet More Problems for Ligado (Dec. 28, 2022), available at <https://www.forbes.com/sites/dianafurchtgott-roth/2022/12/28/yet-more-problems-for-ligado/?sh=5f626cd11bbd>.

105. In addition to Section 1662, the NDAA contained other provisions that specifically target Ligado and were intended to delay, disrupt, and destroy Ligado's commercial terrestrial operations. For instance, Section 1661 prohibits DOD from using appropriated funds "to retrofit any Global Positioning System device or system, or network that uses the Global Positioning System, in order to mitigate harmful interference from commercial terrestrial operations" in Ligado's spectrum.<sup>85</sup> It does not, however, prohibit DOD from using funds to "conduct[] technical or information exchanges with" entities that operate in the L-Band.<sup>86</sup> Likewise, Section 1664 prevents the Secretary of Defense from using funds to comply with the April 2020 FCC Order until the Secretary of Defense "submits to the congressional defense committees an estimate of the extent of covered costs and the range of eligible reimbursable costs associated with harmful interference" to DOD's GPS receivers resulting from the April 2020 FCC Order and certifies to such committees that such estimate is accurate "with a high degree of certainty."<sup>87</sup> Through these provisions, Congress gave DOD what it wanted: an excuse to frustrate Ligado's development efforts, rather than implement the April 2020 FCC Order, and the continued ability to use Ligado's authorized spectrum without compensating Ligado.

106. The NDAA, enacted based on DOD's misleading statements about harm to GPS, upended the reasonable investment-backed expectations of Ligado and its investors for no legitimate reason. Once the FCC unanimously approved Ligado's application to use its license to develop and deploy 5G terrestrial communications services, no one reasonably could have predicted that DOD would cause Congress to override the FCC licensing process, prohibit

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<sup>85</sup> *Id.* § 1661(a).

<sup>86</sup> *Id.* § 1661(b)(1).

<sup>87</sup> *Id.* § 1664.

commercial operators from contracting with Ligado on efforts to develop its authorized spectrum if they do any business with DOD, and effectively transfer to DOD a right to block Ligado's use of its spectrum indefinitely.

107. The 2021 NDAA made no legislative findings to support these drastic actions. Indeed, the minimal congressional record underlying the relevant provisions targeting Ligado does not spell out a threat to GPS. Congress never had the benefit of hearing testimony from the FCC, Ligado, or any GPS receiver manufacturers. Congress never received or reviewed the technical or scientific studies that disprove DOD's flawed or false harmful GPS interference assertions presented to the Senate Armed Services Committee in May 2020. Nor did Congress receive from DOD evidence to support DOD's claims about the potential for harmful interference to GPS.

#### **X. DOD Has Failed to Make the 2021 NDAA Certifications.**

108. Since the passage of the 2021 NDAA, DOD has either delayed implementing the statute or has failed to comply with it entirely. This non-compliance is yet another tool wielded by DOD to prevent Ligado from using its property, and to maintain DOD's use of Ligado's property, without just compensation.

109. Even though DOD knows that there is no legitimate basis to question the FCC's conclusion that GPS receivers would not experience harmful interference caused by Ligado's authorized use of its licensed spectrum, *see* Section V, *supra*, DOD has not yet made a certification to that effect under Section 1662, nor does it appear to have taken any steps towards doing so.

110. Section 1663 mandates that DOD engage the National Academies within 30 days of the enactment of the 2021 NDAA and that the National Academies return a report 270 days after that.<sup>88</sup> If DOD had acted in a timely manner, the full report would have been submitted to

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<sup>88</sup> *Id.* §§ 1663(a)(2) and (c)(1).

Congress by the end of October 2021. Instead, DOD delayed the study and the National Academies did not hold its first meeting of the study team until September 20, 2021, merely five weeks before Congress asked for the study to be completed. Because of DOD's delay, the National Academies' report was not published until September 9, 2022, nearly a year after the timeline Congress established.

111. Section 1664 requires DOD to estimate and certify the costs of complying with the April 2020 FCC Order before taking any steps to implement it. DOD has not yet issued that certification and has provided no indication that it plans to do so. Most tellingly, DOD has refused Ligado's attempts to assist in identifying potentially affected GPS receivers. In fact, neither DOD nor DOC has provided even a single example of a GPS receiver that would be harmed by Ligado's terrestrial services, even though Section 1661 explicitly provides that DOD may spend funds to "conduct[] technical or information exchanges with" Ligado regarding harmful interference to GPS devices. Given that DOD studied the impacts of Ligado's proposals for more than 20 years, the agency's failure to develop a cost estimate more than two years after the April 2020 FCC Order is clearly deliberate.

112. DOD's behavior demonstrates that it is abusing the regulatory and legislative process to cover up its own use of Ligado's authorized spectrum and to prevent Ligado's use of its ATC authority for 5G terrestrial services, all without providing just compensation. Indeed, Congress, through passage of Section 1613 of the **2022 NDAA**, has indicated its own frustration at the pace of DOD's compliance and its concern that DOD may not have shared all relevant information with Congress, agencies having jurisdiction over spectrum, or entities with authority over DOD, like the White House and the National Security Council. Section 1613 of the 2022 NDAA, which became law on December 27, 2021, includes remarkable language directing DOD

to brief the National Security Council, the DOC, FCC, and Congress on “(1) potential operational impacts that have been studied” with respect to the L-Band and “(2) impacts that could be mitigated, if any, including how such mitigations could be implemented,” within 30 days of the passage of the 2022 NDAA.<sup>89</sup> Congress thus passed a law requiring DOD to tell the truth about the impacts of the April 2020 FCC Order on “other tactical and strategic systems” of DOD, in addition to GPS.<sup>90</sup>

113. Section 1682 of the 2022 NDAA also pushes DOD to take action with respect to its obligations under the 2021 NDAA. For instance, it requires the Secretary of Defense to provide Ligado with an estimate of repair-and-replace expenses related to GPS “[a]s soon as practicable” after making the certification required by Section 1664 of the 2021 NDAA.<sup>91</sup> Section 1682 also requires that the Secretary of Defense establish a process for Ligado to provide reimbursement for such certified costs.<sup>92</sup> To date, and close to two years since Congress originally instructed DOD to calculate repair-and-replace estimates in the 2021 NDAA, DOD has failed to provide Ligado any such estimate or to establish a reimbursement process. This continuous failure to identify any repair-and-replace costs due to Ligado’s purported harmful interference with DOD’s GPS receivers, as explicitly required by Congress in two consecutive NDAAAs, is strong evidence that no such costs or harmful GPS interference exist.

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<sup>89</sup> National Defense Authorization Act for Fiscal Year 2022, Pub. L. 117-81, § 1613, 135 Stat. 1541, 2083–84 (2021).

<sup>90</sup> *Id.*

<sup>91</sup> National Defense Authorization Act for Fiscal Year 2022, Pub. L. 117-81, § 1682, 135 Stat. 1541, 2118 (2021).

<sup>92</sup> *Id.*

**XI. DOD and DOC Have Blocked Ligado from Using Its Authorized Spectrum for Terrestrial Services and Realizing the Reasonable Investment-Backed Expectations of its FCC License and ATC Authority.**

114. As a result of DOD’s physical use of and dependence on Ligado’s spectrum, DOD’s and DOC’s pretextual boycott and campaign against Ligado, the anti-Ligado provisions of the 2021 NDAA, and DOD’s refusal to make the certifications required by that statute, Ligado cannot realize the reasonable investment-backed expectations of its FCC license and ATC authority for terrestrial services in its authorized spectrum. On information and belief, DOD has gone even further and threatened one of Ligado’s potential partners that if it engaged with Ligado, the vendor would not be able to contract with DOD.

115. As detailed below, Ligado has done what it could to prepare to deploy its terrestrial services in its exclusively licensed spectrum, including making significant investments to develop 5G products to enable deployment of the L-Band. But all of this time and effort invested into pre-deployment preparations have been in vain because DOD and DOC continue to prevent Ligado from using its licensed spectrum to deploy its terrestrial services. Billions of dollars invested to secure and prepare to use Ligado’s terrestrial authority have been wasted as a result of the United States’ physical, categorical, and regulatory takings (which began no later than April 22, 2020, the date the FCC granted Ligado modified ATC authority to launch terrestrial services) and legislative taking (which began on January 1, 2021, the date the NDAA was enacted into law).

116. For instance, in reliance on the April 2020 FCC Order, Ligado engaged in a 12-month successful project with the Third Generation Partnership Project (“3GPP”), the wireless industry’s global standard-setting body, to standardize the L-Band and thereby enable

infrastructure vendors to develop 5G products compatible with its mid-band spectrum.<sup>93</sup> Throughout 2021 and 2022, Ligado took significant steps to invest in the L-Band ecosystem and develop the technology necessary to integrate its potential 5G services into consumer and industrial telecommunications products. Since the April 2020 FCC Order, Ligado has invested substantial time, energy, and capital into creating 5G base stations and mobile chipsets compatible with its authorized spectrum and positioning itself to serve critical spectrum infrastructure needs.

117. This successful preparatory work has further confirmed the benefits, value, and potential of Ligado's FCC-authorized terrestrial services, and establishes that Ligado's authorized spectrum could play a meaningful role in accelerating 5G in the United States. But all of this preparatory work and economic investment has been lost and will continue to go to waste so long as DOD and DOC continue to hinder Ligado's use of its authorized spectrum.

118. Ligado has also done what it could to implement the April 2020 FCC Order—including establishing a meaningful repair-and-replace program and expending substantial effort to make federal agencies' participation in the program as easy as possible—and to prepare its L-Band spectrum for 5G deployment, as authorized by the FCC. However, because of the harsh repercussions under the 2021 NDAA to those who do business with Ligado and the pressure put on Ligado's potential partners by DOD, Ligado cannot deploy its authorized spectrum for terrestrial use and thus cannot realize the anticipated return on the vast sums of money it has spent over the last 20 years, including the billions invested following, and in reliance on, the April 2020 FCC Order.

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<sup>93</sup> Press Release, Ligado Networks LLC, 3GPP Approves Band Specifications of Ligado's L-Band Spectrum for 5G Deployment (June 21, 2021), <https://ligado.com/press/3gpp-approves-band-specifications-ligados-l-band-spectrum-5g-deployment/>.

119. By way of example, Ligado's FCC license and modified ATC authority also authorize Ligado to lease its authorized spectrum to carriers of cellular services. These leases can be worth more than one billion dollars in revenue per year to Ligado because its valuable spectrum could be combined with finite carrier-owned spectrum to support broad-based and economical 5G carrier network deployments.<sup>94</sup> In the ordinary course, these carrier partnerships would have been formed by Ligado promptly following the April 2020 FCC Order, providing Ligado with a significant interim contracted revenue stream while Ligado completes deployment of its terrestrial 5G services. But due to DOD and DOC's actions, including DOD's threats to not do business with anyone who works with Ligado, which threats are backed by Section 1662 of the 2021 NDAA, Ligado has been unable to form such carrier partnerships. Those billions of dollars in lost revenues, which Ligado continues to be deprived of to this day, represents additional compensation due and owing to Ligado by the United States government for its takings.

120. As long as DOD continues to use Ligado's authorized spectrum, Ligado will be unable to utilize its exclusive FCC license and ATC authority to launch its FCC-authorized terrestrial 5G communications services. As confirmed by multiple government officials, DOD's previously undisclosed systems and Ligado's terrestrial services cannot coexist in Ligado's licensed spectrum. Until DOD stops using Ligado's authorized spectrum for its own purposes, all of Ligado's work to operationalize its license and ATC authority—both before and after the April 2020 FCC Order—will be wasted.

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<sup>94</sup> See, e.g., Howard Buskirk, *T-Mobile's Bet on Mid-Band Driving Its 5G Success, Says CEO*, Communications Daily (July 14, 2022), <https://communicationsdaily.com/article/print?id=1306102> (discussing how T-Mobile grew from the fourth largest carrier in the U.S. to the second largest carrier because “it predicted correctly the latest generation of wireless would unfold in mid-band” spectrum).

121. Independent, third-party, professional valuations have determined that the terrestrial authority exclusively granted to Ligado is worth as much as \$39 billion—all of which value has been destroyed by the United States’ unconstitutional taking of Ligado’s property. In addition, Ligado’s inability to operationalize the terrestrial authority conferred by its exclusive FCC license due to DOD and DOC’s interference and the United States’ takings—including the inability to lease to others the spectrum for terrestrial use or otherwise monetize its valuable property—has resulted in billions of dollars in additional uncompensated takings.

**XII. DOD Is Forced to Reveal Its True Objective in Blocking the Terrestrial Use of Ligado’s Exclusively Licensed Spectrum: The Agency Wants to Continue to Use Ligado’s Spectrum for DOD’s Own Purposes Without Providing Compensation.**

122. As discussed above, the real reason behind DOD’s and DOC’s efforts to harm Ligado was to cover up the taking of Ligado’s exclusively licensed spectrum for its own use without compensation to Ligado. Moreover, on information and belief, these actions were known to and directed by officials at the highest levels of DOD, DOC, and NTIA.

123. After the FCC granted Ligado’s Applications to provide 5G terrestrial services in its licensed spectrum, DOD began to selectively disclose—on information and belief, for the first time—that it was using Ligado’s authorized spectrum. These disclosures were made as part of a concerted effort by DOD and DOC to rally the support of Congress, other agencies, and the public against Ligado, and to prevent Ligado from using its FCC license and ATC authority for its terrestrial services.

124. For approximately two years, DOD’s use of Ligado’s authorized spectrum has been confirmed to Ligado by multiple senior government officials. Specifically, these officials informed Ligado that DOD needs *all* of Ligado’s spectrum authorized for wireless terrestrial 5G services, and that DOD needs *permanent use* of that authorized spectrum. The National

Academies' report further confirms that DOD needs the entirety of Ligado's spectrum to operate undisclosed systems.<sup>95</sup>

125. These admissions that DOD is using Ligado's authorized spectrum came only *after* the FCC granted Ligado's license modification Applications, *after* nearly a decade of consideration by members of IRAC—including DOD and NTIA—of Ligado's plans to provide terrestrial services in its licensed spectrum, and *after* Ligado had spent billions of dollars investing in and preparing to deploy its FCC-licensed terrestrial services. DOD misled the FCC, Congress, other government agencies, Ligado, and the public to conceal its taking of Ligado's authorized spectrum—all at the expense of Ligado's rights.

126. In addition, high-ranking NTIA and DOC officials failed to disclose DOD's use of Ligado's authorized spectrum when NTIA submitted various filings to the FCC. NTIA and DOC lent their names and authority—as the representatives of the Executive Branch on spectrum policy—to DOD, even though DOD's true concerns were not with GPS.<sup>96</sup> In doing so, NTIA stoked anti-Ligado sentiment, lent legitimacy to the pretext protecting DOD, heaved additional obstacles in Ligado's path, and provided a stamp of Executive Branch approval for DOD's taking of Ligado's licensed spectrum without compensation.

127. DOD and DOC's efforts to block Ligado's license modification Applications, to prevent Ligado's use of its FCC-approved exclusive authority to provide terrestrial communications services in its authorized spectrum, and to publish misleading information about

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<sup>95</sup> National Academies of Sciences, Engineering, and Medicine, *Analysis of Potential Interference Issues Related to FCC Order 20-48* (The National Academies Press, 2022), <https://nap.nationalacademies.org/read/26611>.

Ligado's plans have enabled DOD's continued use of that spectrum without compensation. And, among other things, DOD's refusal to engage in the regulatory process and failure to certify no harmful interference under the 2021 NDAA are blatant delay tactics aimed at allowing DOD to continue to use Ligado's exclusively licensed spectrum with impunity and without justly compensating Ligado.

128. On information and belief, DOD's systems have continuously used Ligado's authorized spectrum since at least the April 22, 2020 FCC Order modifying Ligado's ATC authority—and continue to use that spectrum today—without providing compensation to Ligado.

129. To the extent DOD's systems are transmitting or receiving signals in Ligado's allocated spectrum that interfere with Ligado's ability to transmit or receive its own signals, DOD's actions constitute a physical taking. To the extent DOD's systems are receiving signals adjacent to Ligado's allocated spectrum that require the creation of a "dead zone" for terrestrial services in Ligado's allocated spectrum to avoid harmful interference with DOD's systems, that too is a physical taking. Under either scenario, DOD's systems are occupying Ligado's exclusively authorized spectrum and have deprived Ligado of property rights—including the right to use or lease to others the spectrum authorized for terrestrial use, and the right to exclude others from using the spectrum. In fact, DOD and DOC have excluded Ligado from operating terrestrial services in its own spectrum. The U.S. Government has not compensated Ligado for this taking.<sup>97</sup>

130. Ligado's business model, financing arrangements, and December 2015 Applications to modify its license were all predicated on its ability to use its exclusive FCC license

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<sup>97</sup> As discussed in Section I, *supra*, the FCC is the only federal agency authorized to grant, modify, or revoke a license to use spectrum by a commercial entity, such as Ligado. *See* 47 U.S.C. § 303(b). The FCC did not do so and neither DOD nor NTIA have the legal authority to do so.

to provide FCC-authorized terrestrial communications services, including the ability to lease to others its terrestrial capacity in that spectrum. DOD and DOC's actions have rendered Ligado unable to proceed with its FCC-approved plans. By physical occupation, regulatory action, and legislative action, the U.S. Government has eviscerated the value of Ligado's property—including both its exclusive FCC license and its supplemental ATC authority—and appropriated that property for its own use. Ligado has been forced to bear the costs of the United States' actions. These actions have had, and will continue to have, catastrophic economic effects on Ligado and its reasonable investment-backed expectations. And to this day, on information and belief, DOD continues to operate its systems for free using Ligado's exclusively licensed spectrum.

131. Rather than contracting with Ligado and providing just compensation for the use of (or for Ligado not to use) Ligado's exclusively licensed spectrum, DOD, with support from DOC, has engaged in a reckless campaign of misinformation about purported harmful GPS interference. Unlike the FAA during its recent conflict with the FCC over the deployment of Verizon and AT&T's 5G network in the C-Band,<sup>98</sup> DOD and DOC have refused to work with Ligado to resolve this conflict. Instead, DOD and DOC have taken Ligado's authorized spectrum for use in DOD's own systems without paying just compensation. Their position is clear: they want to use the spectrum for free, rather than pay to solve the problem they created, even if that means putting Ligado out of business.

132. That position is both unconstitutional and inconsistent with how DOD has dealt with similarly situated companies. The Department of Defense—the largest federal agency, supplier of government contracts, and employer in the world—contracts with thousands of

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<sup>98</sup> See, e.g., Niraj Chokshi, *The F.A.A. Announces Progress in Expanding 5G Service at Airports*, N.Y. Times (Jan. 28, 2022), <https://www.nytimes.com/2022/01/28/technology/faa-5g-verizon-att.html>.

companies to provide critical military services and assets. In fact, several of DOD's outside contractors provide services to DOD using those contractors' licensed L-Band spectrum that is directly adjacent to Ligado's. If DOD wants Ligado's authorized spectrum for its own purposes, there is no reason DOD cannot work with Ligado to achieve that aim through ordinary government contracting, as it does on a daily basis. What DOD cannot do, though, is take Ligado's property without just compensation.

133. Through their conduct, DOD and DOC have effected or caused Congress to effect unconstitutional physical, categorical, regulatory, and legislative takings of Ligado's valuable property rights, and they have destroyed Ligado's reasonable investment-backed expectations. Ligado relied in good faith on the decades-long, rigorous FCC process, and the finality of its April 2020 FCC Order, to invest billions of dollars and build its business strategy around its exclusive right to provide ground-breaking terrestrial services in its spectrum. DOD and DOC have not only taken away Ligado's rights under its FCC license, but in doing so have destroyed Ligado's reasonable investment-backed expectations and put Ligado's entire business in dire jeopardy.

### **CAUSES OF ACTION**

#### **COUNT ONE** **(Uncompensated Physical Taking by DOD)**

134. Ligado re-alleges paragraphs 1 through 126 as if set out fully herein.

135. After an exhaustive and decades-long regulatory process, the FCC granted Ligado an exclusive license to utilize a portion of the L-Band for the purpose of providing terrestrial communications services. On April 22, 2020, the FCC modified Ligado's ATC authority and enabled the Company to commence terrestrial services in its exclusively licensed spectrum. Using its long-established FCC license for MSS services, the ATC authority to develop terrestrial services conferred by the April 2020 FCC Order, and its allocated portion of the electromagnetic

spectrum, Ligado prepared and is continuing to prepare to deploy critical 5G communications infrastructure, which will provide ultra-fast, ultra-reliable services to the public and billions of dollars in revenue to Ligado.

136. Ligado's exclusive right to use this spectrum pursuant to both its duly authorized FCC license and ATC authority is property protected by the Fifth Amendment to the U.S. Constitution, which provides that the U.S. Government shall not take "private property . . . for public use, without just compensation." U.S. Const. amend. V. Broadcast licenses such as Ligado's are immensely valuable assets that are recognized as and behave like property in a wide variety of contexts, including in bankruptcy and for purposes of taxation. *See Alpine PCS, Inc. v. United States*, 128 Fed. Cl. 303, 309 (2016) (recognizing FCC license is property cognizable by the Takings Clause); 47 U.S.C. § 301 (Communications Act provides that FCC licenses should not be construed "to create any right, *beyond* the terms, conditions, and periods of the license." (emphasis added)); *In re Atl. Bus. & Cnty. Dev. Corp.*, 994 F.2d 1069, 1075 (3d Cir. 1993); *In re Alpine PCS, Inc.*, No. 08-00543, 2008 WL 5076983, at \*5 (Bankr. D.D.C. Oct. 10, 2008), *aff'd*, 404 F. App'x 504 (D.C. Cir. 2010).

137. Ligado's duly authorized FCC license and ATC authorization grant it the right to exclusively use and deploy 5G terrestrial communications services for a specific, well-defined spectrum: the 1526 to 1536 MHz, 1627.5 to 1637.5 MHz, and 1646.5 to 1656.5 MHz bands of spectrum. These characteristics—exclusivity and clear boundaries—further show that Ligado has a compensable property interest in the license and ATC authorization. *See, e.g., Members of the Peanut Quota Holders Ass'n, Inc. v. United States*, 421 F.3d 1323, 1331 (Fed. Cir. 2005) (observing right to exclude is key indicator of Fifth Amendment property right); *Todd v. United*

*States*, 155 Ct. Cl. 87 (1961) (recognizing taking of fishing permits that granted plaintiff exclusive fishing rights in “specific locations”).

138. Ligado’s FCC license and ATC authorization are also transferable, another key indicator of a protected property right, even when the property right is not absolute, *see Peanut Quota Holders Ass’n*, 421 F.3d at 1331–32 (noting that ability to transfer is a key indicator of compensable property interest, and that “[t]he mere fact that transfers of allotments are not unrestricted does not undermine the importance of transferability to the characterization of quotas as a form of property”), or is granted by the government, *see Oil States Energy Servs., LLC v. Greene’s Energy Grp., LLC*, 138 S. Ct. 1365, 1375 (2018) (noting that a patent is “a specific form of property right—a public franchise,” and is “entitled to protection as any other property, consisting of a franchise”); *Horne v. Dep’t of Agriculture*, 576 U.S. 350, 359–60 (2015) (observing that a patent is “an exclusive property” right that may not be “appropriated or used by the government itself, without just compensation”).

139. “When the government physically takes possession of an interest in property for some public purpose, it has a categorical duty to compensate the former owner, regardless of whether the interest that is taken constitutes an entire parcel or merely a part thereof.” *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 322 (2002). When the government appropriates the owners’ right to exclude others—“one of the most treasured rights of property ownership,” *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 435 (1982)—the government’s actions constitute “the clearest sort of taking,” *Cedar Point Nursery v. Hassid*, 141 S. Ct. 2063, 2071–72 (2021) (citation omitted).

140. The United States has effected a *per se* physical taking of Ligado’s exclusively licensed spectrum and ATC authority, and the attendant right to exclude others from using such

spectrum, by operating DOD’s previously undisclosed systems in Ligado’s allocated spectrum. See *United States v. Causby*, 328 U.S. 256, 265 (1946) (holding that the United States’ use of airspace super-adjacent to private property to land aircraft—and which destroyed private owner’s ability to use land as a chicken farm—was a physical taking because the United States’ use of the super-adjacent airspace was “so close to the land that continuous invasions of it affect the use of the surface of the land itself”); *Arkansas Game & Fish Com’n v. United States*, 568 U.S. 23, 33 (2012) (confirming that flooding of land by government constitutes a taking and noting that takings claims are “not confined to instances in which the Government took outright physical possession of the property involved,” but also include “government action occurring outside the property [that] give rise to a direct and immediate interference with the enjoyment and use of the land”). This physical taking began no later than April 22, 2020—the day the FCC granted Ligado modified ATC authority to use its exclusively licensed spectrum for terrestrial operations—and it has continued at least through the date of this filing, and on information and belief, will continue indefinitely.

141. To the extent DOD’s systems are transmitting or receiving signals in Ligado’s allocated spectrum, that is a physical taking of Ligado’s licensed spectrum, including its ATC authority. To the extent DOD’s systems are receiving signals adjacent to Ligado’s allocated spectrum, thus requiring the creation of a “dead zone” or buffer in Ligado’s allocated spectrum to avoid harmful interference with DOD’s systems, that too is a physical taking of Ligado’s licensed spectrum, including its ATC authority. Under either scenario, DOD’s systems are occupying Ligado’s exclusive rights to its FCC-authorized spectrum, and have deprived Ligado of property rights, including the right to use its FCC license and ATC authority, the right to lease to others its

terrestrial capacity in that spectrum for its own economic gain, and the right to exclude others from using the spectrum.

142. For all these reasons, the United States has effected and is continuing to effect a physical taking for public use within the meaning of the Fifth Amendment of the U.S. Constitution, and Ligado is entitled to just compensation.

**COUNT TWO**  
**(Uncompensated Categorical Taking by DOD, DOC, and NTIA)**

143. Ligado re-alleges paragraphs 1 through 135 as if set out fully herein.

144. A categorical taking occurs when regulations completely deprive an owner of “all economically beneficial use” of private property. *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1019 (1992). Government action that renders property completely useless effects a loss “as complete as if the United States had entered upon the surface of the land and taken exclusive possession of it.” *Causby*, 328 U.S. at 261.

145. DOD, DOC, and NTIA’s actions constitute a categorical taking of the ATC authority conferred by Ligado’s license, because those actions have completely deprived Ligado of all economic value in the use of its exclusively allocated and licensed spectrum for terrestrial services. The FCC granted Ligado a license and ATC authority to use its authorized spectrum to provide terrestrial communications services. But DOD, DOC, and NTIA have engaged in conduct that has made Ligado unable to actually develop and deploy such terrestrial services. DOD, DOC, and NTIA have totally deprived Ligado of all the economic benefits that Ligado could have expected from using and developing its exclusively allocated and licensed spectrum for terrestrial services by, among other things: (i) threatening Ligado’s business partners in order to interfere with the formation or performance of contracts necessary for the development of Ligado’s authorized terrestrial services; (ii) failing to engage with the regulatory process and thereby

delaying FCC action on Ligado's Applications; (iii) failing to implement the provisions of the April 2020 FCC Order, which provides for federal agencies to engage in information sharing and planning discussions in order to facilitate the deployment of Ligado's terrestrial services; (iv) making submissions to Congress to cause it to include punitive provisions in the NDAA to prevent Ligado from utilizing the spectrum for terrestrial services; (v) failing to certify under the NDAA that Ligado's use of its allocated spectrum for terrestrial services does not cause harmful interference with GPS receivers even though it is clear that it does not; and (vi) publishing incomplete, misleading, and false information about the potential for harmful interference from Ligado's development of its authorized spectrum for terrestrial services.

146. Through these actions, DOD, DOC, and NTIA have prevented Ligado from using its immensely valuable property rights, including the ability to use its ATC authority to deploy terrestrial communications services within the L-Band, lease to others the spectrum for terrestrial use, or enjoy other benefits of its exclusivity. The U.S. Government has eliminated the value of Ligado's property—specifically, its ATC authority, which has been valued as worth up to \$39 billion—and appropriated Ligado's property for its own benefit. These actions have had, and will continue to have, catastrophic economic effects on Ligado, preventing it from earning income from the provision of terrestrial services through its exclusive ATC authority and spectrum. In addition, Ligado's inability to operationalize its ATC authority due to DOD, DOC, and NTIA's interference and the United States' takings—including the inability to lease to others the spectrum for terrestrial use or otherwise monetize its valuable property—has resulted in billions of dollars in additional uncompensated takings. This categorical taking began no later than April 22, 2020—the day the FCC granted Ligado modified ATC authority to use its exclusively licensed spectrum

for terrestrial operations—and it has continued at least through the date of this filing, and on information and belief, will continue indefinitely.

147. For all these reasons, the United States has effected and is continuing to effect a categorical taking for public use within the meaning of the Fifth Amendment of the U.S. Constitution, and Ligado is entitled to just compensation.

**COUNT THREE**  
**(Uncompensated Regulatory Taking by DOD, DOC, and NTIA)**

148. Ligado re-alleges paragraphs 1 through 140 as if set out fully herein.

149. Although the government may enact regulations and take appropriate action that restricts an owner’s ability to use its own property “to a certain extent, if regulation goes too far it will be recognized as a taking.” *Cedar Point Nursery*, 141 S. Ct. at 2072 (quoting *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922)). To determine whether a use restriction effects a taking, courts balance “factors such as the economic impact of the regulation, its interference with reasonable investment-backed expectations, and the character of the government action.” *Id.* (citing *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104, 124 (1978)).

150. The FCC granted Ligado a license and ATC authority to use its exclusively allocated spectrum in order to provide terrestrial communications services. After the FCC did so, Ligado engaged in fundraising and raised approximately \$4 billion in new debt and converted approximately \$6 billion of existing debt to equity, all in reliance on the April 2020 FCC Order. Those investments were reasonable, given the FCC’s final and exclusive authority in allocating spectrum for commercial use.

151. DOD, DOC, and NTIA have made it untenable for Ligado to actually develop and operate such terrestrial services. They have denied Ligado the economic benefits expected to flow from its FCC license, ATC authority, and exclusively allocated spectrum by, among other things:

(i) threatening Ligado’s business partners in order to interfere with the formation or performance of contracts necessary for the development of Ligado’s authorized terrestrial spectrum; (ii) failing to engage with the regulatory process and thereby delaying FCC action on Ligado’s Applications; (iii) failing to implement the provisions of the April FCC 2020 Order, which provides for federal agencies to engage in information sharing and planning discussions in order to facilitate the deployment of Ligado’s terrestrial services; (iv) making submissions to Congress to cause it to include punitive provisions in the NDAA to prevent Ligado from utilizing the spectrum for terrestrial services; (v) failing to certify under the NDAA that Ligado’s use of its allocated spectrum for terrestrial services does not cause harmful interference with GPS receivers even though it is clear that it does not; and (vi) publishing incomplete, misleading, and false information about the potential for harmful interference from Ligado’s development of its authorized spectrum for terrestrial services. And DOD, DOC, and NTIA have accomplished these actions by specifically burdening and targeting Ligado, a private actor, for an alleged public benefit—the quintessential character of a regulatory taking.

152. Ligado’s business model, financing arrangements, and ATC Applications were all predicated on its ability to use its exclusive FCC license to provide FCC-authorized terrestrial communications services, including the ability to lease to others its terrestrial capacity in that spectrum or otherwise monetize its valuable property. DOD, DOC, and NTIA’s actions have rendered Ligado unable to proceed with its FCC-approved plans. The U.S. Government has gutted the value of Ligado’s property—including its ATC authority, which has been valued as worth up to \$39 billion—and appropriated Ligado’s property for its own benefit. These actions have had, and will continue to have, catastrophic economic effects on Ligado, preventing it from earning income from its exclusive license, ATC authority, and spectrum. In addition, Ligado’s inability

to operationalize its FCC license and ATC authority due to DOD, DOC, and NTIA’s interference and the United States’ takings—including the inability to lease to others the terrestrial capacity in the spectrum or otherwise monetize its valuable property—has resulted in billions of dollars in additional uncompensated takings. This regulatory taking began no later than April 22, 2020—the day the FCC granted Ligado modified ATC authority to use its exclusively licensed spectrum for terrestrial operations—and it has continued at least through the date of this filing, and on information and belief, will continue indefinitely.

153. For all these reasons, the United States has effected and is continuing to effect a regulatory taking for public use within the meaning of the Fifth Amendment of the U.S. Constitution, and Ligado is entitled to just compensation.

**COUNT FOUR**  
**(Uncompensated Legislative Taking by the United States through the 2021 NDAA)**

154. Ligado re-alleges paragraphs 1 through 146 as if set out fully herein.

155. Congress’ passage of Subtitle E of Title XVI of the 2021 NDAA—which, among other things, takes away the right of any company that partners with Ligado on its terrestrial services to do business with DOD (the largest government agency and employer in the United States)—destroyed Ligado’s ability to form the partnerships necessary to deploy terrestrial services in its spectrum and thereby effected a legislative taking of Ligado’s property rights in its FCC license and ATC authority.

156. Although Congress may enact laws that restrict an owner’s ability to use its own property to a limited extent, if “the regulatory restrictions in the new statute[] go ‘too far’ in constraining them,” the legislation becomes a taking. *See Cienega Gardens v. United States*, 331 F.3d 1319, 1328 (Fed. Cir. 2003); *see also Whitney Benefits, Inc. v. United States*, 926 F.2d 1169 (Fed. Cir. 1991). As with other governmental action, to determine whether legislation effects a

taking, courts balance “factors such as the economic impact of the regulation, its interference with reasonable investment-backed expectations, and the character of the government action.” *Cienega Gardens*, 331 F.3d at 1337 (citing *Penn Central Transportation Co.*, 438 U.S. at 124). Likewise, when a “regulation denies all economically beneficial or productive use” of private property, that legislation amounts to a categorical regulatory taking. *See Lucas*, 505 U.S. at 1019.

157. The FCC granted Ligado an exclusive license and ATC authority to use its authorized spectrum to provide terrestrial communications services in the April 2020 FCC Order. After the FCC did so, Ligado engaged in fundraising and raised approximately \$4 billion in new debt and converted approximately \$6 billion of existing debt to equity in October 2020, all in reliance on the finality of the FCC’s decision. Those investments were reasonable, given the FCC’s final and exclusive authority in allocating spectrum for commercial use.

158. After the FCC granted Ligado authority to develop and operate terrestrial communications services in its allocated and licensed spectrum, Congress took targeted legislative action that deprived Ligado of the very rights afforded by the FCC just months earlier. On January 1, 2021, Congress enacted Subtitle E of Title XVI of the 2021 NDAA, which specifically prohibited DOD from expending any funds to work with Ligado or implement certain provisions of the April 2020 FCC Order. The 2021 NDAA also barred DOD from contracting with Ligado or *any* entity that works with or uses Ligado’s commercial terrestrial communications services. In other words, Congress enacted a law that prohibited both DOD and any business that contracts with DOD from working with Ligado—an American company critical to the global 5G arms race.

159. These provisions destroy Ligado’s ability to use and develop its exclusively licensed spectrum to provide terrestrial services in accordance with the April 2020 FCC Order. The 2021 NDAA prevents Ligado from partnering with any and all clients or vendors that also

contract with DOD, by far the nation's largest purchaser of goods and services. That penalty is, in practice, a prohibition on contracting with Ligado to develop its licensed spectrum for terrestrial services. The statute also diminishes the value of Ligado's licensed spectrum in other ways—for example, by prohibiting the use of funds to retrofit GPS receivers or otherwise implement the terms of the April 2020 FCC Order until certain certifications are made. In short, the 2021 NDAA sounded a death knell for Ligado's ability to use the ATC authority conferred by Ligado's FCC license, to provide commercial terrestrial communications services, and to exact any economic value from the terrestrial capacity in its allocated spectrum.

160. Ligado's business model, contracts, financing arrangements, and ATC Applications were all predicated on its ability to use its exclusive FCC license to provide FCC-authorized terrestrial communications services, including the ability to lease to others the terrestrial capacity of its spectrum. The 2021 NDAA rendered Ligado unable to proceed with its FCC-approved plans. The United States has eliminated the value of Ligado's property, appropriated Ligado's property for its own benefit, and has done so through means that go beyond a simple use restriction and instead constitute a quintessential legislative taking. These actions have had, and will continue to have, catastrophic economic effects on Ligado, preventing it from earning income from the ATC authority conferred by its FCC-licensed spectrum. In addition, Ligado's inability to operationalize its FCC license for terrestrial services due to the United States' takings—including the inability to lease to others the terrestrial capacity of spectrum or otherwise monetize its valuable property—has resulted in billions of dollars in additional uncompensated takings. This legislative taking began on or about January 1, 2021—the day Congress enacted the 2021 NDAA—and it has continued at least through the date of this filing, and on information and belief, will continue indefinitely.

161. For all these reasons, the United States has effected and is continuing to effect a legislative taking for public use within the meaning of the Fifth Amendment of the U.S. Constitution, and Ligado is entitled to just compensation.

**PRAYER FOR RELIEF**

WHEREFORE, Ligado specifically requests that judgment be entered:

- A. Ordering the United States to provide Ligado just compensation in an amount to be determined at trial for its past, present, and future taking of Ligado's rights pursuant to the April 2020 FCC Order and prior FCC orders to (i) deploy terrestrial services in the 1526 to 1536 MHz, 1627.5 to 1637.5 MHz, and 1646.5 to 1656.5 MHz bands; (ii) lease to others its rights to deploy terrestrial services in the 1526 to 1536 MHz, 1627.5 to 1637.5 MHz, and 1646.5 to 1656.5 MHz bands; and (iii) enjoy the benefits of exclusivity in the 1526 to 1536 MHz, 1627.5 to 1637.5 MHz, and 1646.5 to 1656.5 MHz bands;
- B. Granting Ligado costs and attorneys' fees pursuant to 28 U.S.C. § 2412; and
- C. Such other and further relief that the court deems just and proper.

Dated: October 12, 2023

By: /s/ Harris M. Fischman

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